Columbia River CROSSING

ENVIRONMENTAL IMPACT STATEMENT
AGREEMENT NUMBER Y-9245

TASK AC

STATEMENT OF WORK

November 29, 2005

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A. PROJECT PURPOSE

Work under Task AC will cover remaining Phase 1 work elements as described in the Columbia River Crossing (CRC) Project Flow Chart. Phase 1 work was initiated under Task AB to cover the time period from July 2005 through October 2005. Task AC services will cover a 14- to 18-month time period beginning November 1, 2005 and ending in the December 2006 to April 2007 time period.

Remaining Phase 1 work under Task AC will advance the project through the following key milestones:

- Refine Purpose and Need
- Confirm Range of Alternatives for Draft Environmental Impact Statement (DEIS)
- Identify and form recommendations on procurement process

Key work elements will include public involvement; NEPA development; travel demand forecasting and traffic analysis; alternatives development; design and traffic engineering; development of funding structures; and development of initial implementation strategies.

B. COORDINATION

This project is being jointly managed by the Oregon Department of Transportation (ODOT) and Washington State Department of Transportation (WSDOT) within the CRC Project Office. In this Statement of Work (SOW), CRC is defined as ODOT and WSDOT joint project directors. The STATE is defined as other staff from either ODOT or WSDOT. The CONSULTANT is defined as David Evans and Associates, Inc. (DEA) and its subconsultants. Other agencies are described by name.

This SOW has been developed under the Managing Project Delivery (MPD) process. Accordingly, the CRC and CONSULTANT jointly developed the following Vision and Purpose statements that will guide the project development process:

Vision: The Columbia River Crossing Project will improve the movement of people, goods, and services at the river crossing and within the corridor in a manner that is accepted and built. The project will be multimodal; environmentally sensitive; fundable; and support the community.

Purpose: Deliver the EIS and Record of Decision; develop a framework and strategy to deliver the project; provide a roadmap for the next phase's success; and, ultimately, build the project.

The CONSULTANT's approach will be to perform as an adjunct of the CRC and STATE. The CRC and STATE will provide support services to the CONSULTANT as described in the SOW.

C. WORK ELEMENTS

1.0 PROJECT MANAGEMENT

The purpose of this work element is to provide management and direction to the CONSULTANT team and support to CRC and STATE staff and review of their work over the course of the project.

1.1 Project Team Oversight and Coordination

This work includes the internal day-to-day coordination and management of the CONSULTANT team. Work includes administrative support for assigning and scheduling work, monitoring progress, and managing change. This work element includes direction and monitoring of the subconsultants and their work for delivery of Task AC.

Assumptions:

Part of the CONSULTANT team will be co-located with CRC and STATE staff. The remainder will be located at their home offices. Expenses associated with team oversight and coordination will include job-related costs to provide management of the team.

1.2 Project and Agency Coordination Meetings

This work element provides for the preparation, attendance, follow-up, and documentation of weekly coordination meetings for Task AC. These meetings will be the forums for the CRC to provide input and guidance for the direction of the CONSULTANT team, and will be used to discuss submittals, identify project issues, and develop solutions. In addition, work under this element includes participation by the Project and Deputy Project Manager in work group meetings.

Assumptions:

Most meetings will be held at the CRC office in Vancouver, Washington. Work group and agency meetings may be held in various locations and include travel time and expenses.

Deliverables:

- Agendas, action item tracking, and documentation of meetings

1.3 Intergovernmental Agreements

This work element provides for the completion of Intergovernmental Agreements (IGAs) with the project partners. Work includes coordination with Metro, RTC, TriMet, C-TRAN, City of Portland, and City of Vancouver to prepare draft scopes of works and budgets for negotiations by the STATEs. Other work includes supporting the STATEs in drafting Stewardship Agreements with the Federal Highway Administration (FHWA) and the Federal Transit Authority (FTA).

Assumptions:

The agencies will provide draft SOWs and budgets for the IGA's. The CONSULTANT will assemble the IGA packages for review and negotiation by the STATEs. The CONSULTANT

will coordinate with FTA and FHWA in preparing the draft Stewardship Agreement for CRC approval and negotiation.

Deliverables:

- Draft IGAs and draft Stewardship agreements

2.0 PROJECT CONTROLS

The purpose of this work element is to develop and maintain the CRC Project Control Systems to support the CRC staff. The intent is to maintain a current schedule and budget scenario that matches the CRC scope and recommendations including supplemental task orders.

2.1 Schedule Management and Control

This work includes the development, coordination, and management of the CRC Master Program Schedule. Work includes development of an overall Master Program Schedule including:

- identifying activities of all stakeholders involved
- coordination of various disciplines within CRC
- incorporation of STATE interfaces
- milestones for internal and external agency coordination
- key process milestones for identification

The Master Schedule will be maintained and updated on a monthly basis to reflect the current progress and status of individual activities and any revisions required to reflect the latest approved timeline and supporting activity coordination.

As various finance and funding models are formulated, the schedule will be modified as needed to reflect the work effort commensurate with the funding available.

Assumptions:

CRC will provide the scheduling software to develop the schedule.

Deliverables:

- CRC Master Schedule
- Monthly Updates
- Concept Alternative Schedules (as necessary)
- Revised Baseline Schedule (as necessary)

2.2 Budget Management and Document Control

This work element provides for development, coordination, and management of the CRC Master Program Budget and document control. Work includes:

- Development of program budget
- Development of a budget reporting system
- Coordination of project estimates
- Integration with Work Breakdown Structure

- Maintenance of a document tracking system
- Identification/formalization of budget scope changes

Assumptions:

CRC will provide the software to develop and maintain the budget and document control systems.

Deliverables:

- CRC Master Budget Baseline
- Monthly Updates
- Budget Scope Change Notice (as necessary)
- Document Tracking System

2.3 Monthly Progress Reports

This work element provides for the routine reporting to the STATEs, and the Executive Management Group, of project progress and accomplishments. Work consists of:

- Derivation of Report Format/Content
- Compilation of Progress Data from CRC sources
- Generation of Compiled Report
- Distribution (as approved)

Deliverables:

- CRC Monthly Progress Report

2.4 Monthly Invoice

This work element provides for the compilation and invoicing of the CONSULTANT team services to the CRC, in accordance with the negotiated contract. This work includes:

- Development of an approved format for invoicing
- Coordination of subconsultant invoices
- Generation of monthly invoice

Deliverables:

- CONSULTANT Team Monthly Invoice

2.5 Project Plan and Updates

This work element consists of the development and maintenance of the CRC Project Management Plan, as required by the FTA.

- Development of PMP outline within FTA guidelines
- Coordination of content development by task leaders
- Control of document distribution/updates

Deliverables:

- CRC Project Management Plan

3.0 FINANCIAL AND INSTITUTIONAL STRUCTURES

The purpose of this work element is to assist the CRC in developing and reviewing financial and institutional structures relating to CRC project funding, identify funding and financing opportunities, recommend project structures that support requirements for funding, and conduct preliminary financial analysis of alternatives as part of the screening process. The activities undertaken in this work element are intended to provide groundwork and support to the eventual development of financial plan documentation meeting FTA New Starts and FHWA Mega-Project requirements.

The Washington State Attorney General's (AG's) office will conduct portions of the scope as noted below. While the Washington State AG office will have primary responsibility for certain tasks and deliverables, those items have not been deleted from this scope of work, as support will be provided by other team members in order to maintain a seamless, coordinated effort. The Washington State AG office will also review, comment and otherwise assist on the other work described within this section.

3.1 Financial Project Management, Quality Control and Project Team Support

Primary Responsibility: PB Consult

The CONSULTANT will manage the financial and institutional structures team, organize and administer work group meetings, coordinate with CRC project managers, and collaborate with and provide support to other task managers on related work items. Work under this task includes quality control for all deliverables.

Major work elements include the following:

- Work with the DOTs to establish a bi-state mechanism for coordinating state strategies.
- Establish an ad hoc team of DOT, consultant and other key decision makers to serve in a "CRC Project Finance Working Group."
- Provide materials as necessary to support project communication.

Assumptions:

CRC and STATE staff, and other interested agencies will participate in the Financial Working Group and provide input to the development of issues and proposed policies.

For budgeting purposes, eight person-trips to support four working group meetings are planned. Some working group meetings may be organized in a workshop format.

Deliverables:

- Organization, agenda development, facilitation, and meeting notes of the Finance Working Group

3.2 Discussion/Resolution of Policy-Level Issues

This task involves reviewing previously developed materials (managed lanes study, toll feasibility study, recently passed state legislation, etc.), reviewing the non-tollway alternatives developed to date, coordinating initial and follow-up meetings, developing strategies and policies with regard to highway tolling and transit operations, and documenting the outcome of the overall approach to establishing tolling as an alternative or alternative component to be carried forward into the Phase 2/DEIS effort.

Major work elements include the following items.

3.2.1 Identification of Critical Institutional and Policy Related Issues

Primary Responsibility: Parametrix/Washington State AG's Office

- Identify "critical issues" regarding institutional structures, tolling and finance, and transit operations that may involve significant internal DOT discussion, bi-state transit agency coordination, public controversy, political risks, and/or legislative action, and establish strategies for addressing these critical issues.
- Assess local, state and federal restrictions/existing laws/opportunities involving tolling (both I-5 and I-205), innovative finance mechanisms, procurement methods, toll credits local funding share for transit, and contracting approaches, and document how CRC can best navigate these issues.

3.2.2 Assessment of Institutional Arrangements for Ownership, Delivery and Administration

Primary Responsibility: Washington State AG

- Determine institutional arrangements to own and operate the transit and highway elements of the CRC (for all cases, the right-of-way should be owned by the State or a public agency):
  - Own and operate as a bi-state agency.
  - Owned by bi-state agency but operations by one or more contracts.
  - Franchise to finance, design-build, operate and maintain.
- Assess attributes of a bi-state, multipurpose transportation authority and its relationship to CRC such as geographic scope, authorized powers, and decision making structure.
- Evaluate institutional tolling alternatives, transit operations, innovative finance mechanisms, procurement methods and contracting approaches in a bi-state environment. The following will be considered:
  - WA state tolling restrictions and legislation required for CRC as sole tolling entity and/or as bi-state tolling partner.
  - OR state tolling restrictions and legislation required for CRC as sole tolling entity and/or as bi-state tolling partner.
  - WA and OR restrictions on innovative finance mechanisms, procurement methods and/or contracting approaches, and legislation required to expand opportunities currently restricted.
- Determine who will be responsible for maintenance of the highway and transit facilities/structures, and who will pay for it.

- Determine who will be responsible for policing/enforcing operations, including toll violation and HOV enforcement on the crossing, and who will pay for it.
- Determine if additional legislation is needed to implement the plan.

3.2.3 Assessment of Project Delivery Methods

Primary Responsibility: Washington State AG's Office

- Determine financing, procurement, and contracting approaches to be used in developing the Columbia River Crossing project, including but not limited to:
  - Traditional design-bid-build, States arrange financing.
  - Design-build, States arrange financing.
  - Development agreement, contractor-arranged financing, design and build (operations and maintenance optional), States keep traffic risk.
  - Franchise (concession) to developer/contractor to finance, design, build, operate and maintain, developer takes on traffic risk.
- Assess the level of responsibility allocated between public and private sectors, procurement methodologies, contract methodologies, and scheduling considerations.

3.2.4 Assessment of Tolling Policy Requirements

Primary Responsibility: Vollmer/PB Consult

- Determine key tolling assumptions with input from the Finance Working Group and other CRC team task leaders as appropriate.
  - Determine the likely primary objective for tolling amongst the many interrelated objectives (e.g., targeted funding, demand management, and maximizing revenues), and the range of financial uses for toll revenues (bridge/highway elements only, transit elements, operations and maintenance activities, etc.)
  - Determine scope of tolling with respect to I-5 and I-205, or I-5 only.
  - Determine tolling strategy and participation – commercial vehicles, passenger cars, ETC discounts, HOV policy, etc.
  - Assess impacts of network integration, interoperability, bi-state cooperation, current and expected trends in tolling technology, barrier and barrier-free tolling.
- Identify potential modifications to policy objectives for tolls once the debt for construction has been paid off.
- Determine toll collection method.
  - Determine if manual, cash toll collection will be allowed, and if so, under what conditions.
  - Determine secondary payment methods/schemes for electronic toll collection by occasional users/users without transponders.
  - Determine policies for electronic toll collection (ETC):
    - Legislation requirements
    - Violation enforcement policy assumptions

- Tag distribution policy assumptions such as: Differences if 100% ETC vs. mixed collection; and, for 100% ETC, secondary payment system policies

Assumptions:

The work elements above will generally be completed via the following steps:

1. Kick-off meeting to brainstorm on issues, content and direction for technical memoranda.
2. Prepare and circulate initial draft technical memorandum to survey relevant national and international models and explore various options, attributes, pros and cons.
3. Internal workshop to discuss the memoranda.
4. Finalize the technical memoranda.
5. Further workshops, public input and internal vetting to narrow choices.
6. Present recommendations.

For budgeting purposes, five trips/working group meetings are planned and two team members are anticipated per meeting. Some working group meetings may be organized in a workshop format.

For the transit alternatives, the determination of transit fare structures, payment methods and operating cost recovery target rate policies will be covered under Task 7.8.5.

Deliverables:

Documentation of the findings and recommendations in a series of technical memoranda relating to the following:

- Existing laws and legislative issues within both States and at the Federal level (Primary Author: Washington State AG's Office);
- Options for multi-modal institutional public ownership and administration, including scope and powers (Primary Author: Washington State AG's Office);Project delivery methods (procurement and contracting methods) (Primary Author: Washington State AG's Office);
- Political support and internal coordination steps to support financial & institutional strategies (Primary Author: Parametrix);
- Tolling options, objectives and policies, including recommended toll collection method(s) and toll rate structures (variable by time of day, discounts, participation, etc.) (Primary Author: Vollmer/PB Consult); and
- Transit policies and integration requirements including the use of tolls for transit, and New Starts timing, eligibility and probability of realizing grants (Primary Author: PB Consult).

3.3 Toll Travel Demand and Revenue Forecasting

Primary Responsibility: Vollmer

This task involves using output from the regional travel demand model to determine traffic and revenue estimates for the build alternatives with tolls considered within the Phase 1 screening evaluation of alternatives. The "component screening" stage will rely on previously generated output from the existing Metro travel demand model, as well as data from the existing I-5 Traffic

and Tolling Analysis study, and is assumed to require only minor tolling alternative analyses. The subsequent "alternative screening" stage will use and analyze outputs from METRO's newly refined regional travel demand model, including a VISUM-based assignment toll (this scope assumes that the necessary model outputs are provided no later than August 2006). The output from the regional demand models and previous studies will be used to determine the potential range of revenue streams generated by the build alternatives that will incorporate tolling. Work can be broken down into two tasks associated with the component and alternatives screening:

3.3.1 Component Screening

- Use existing model outputs and prior work developed to perform minor tolling analyses. It is assumed that no additional model outputs will be available, so any tolling work will be performed using existing analyses.
- Efforts during this task will focus on toll policy and strategy discussions to help determine the toll rate structures to be used in subsequent tolling alternatives.

3.3.2 Alternatives Screening

- Early in this phase of work, Vollmer will work closely with Metro to provide input and guidelines in developing the toll modeling travel demand tools (VISUM "Tribute" model component).
- Review of the newly refined Metro travel forecast model, including socio-economic inputs.
- Review and provide input to the "alternative screening" stage travel demand forecasting of tolled traffic demand to be conducted by Metro, with the modeling outputs to be used for the toll traffic and revenue analysis.
- Conduct analysis of revenue forecast results for up to 6 tolling scenarios.
- Provide input to design team on toll collection plans, toll plaza layout, queues at toll plazas, gantry locations, variable message signs, administrative/customer service center requirements and other supporting infrastructure elements.

Assumptions:

- Component screening work will require minimal tolling analyses and will be done based on work previously completed during the I-5 Traffic and Tolling Analysis study. There will be no additional model runs performed.
- Alternative screening will be done using the updated VISUM-based model. METRO will be responsible for all model development and it is assumed that the Consultant will work with Metro to incorporate a tolling algorithm into the VISUM-based Tribute model that is currently under development. It is assumed that this regional model development is currently in progress, and should be sufficiently completed to support tolling analyses by August 2006.
- For budgeting purposes, five trips/working group meetings are planned and two team members are anticipated per meeting. Some working group meetings may be organized in a workshop format.
- The development of transit fare revenue forecasts will be completed within Work Element 7.8.5.

Deliverables:

Primary Author: Vollmer

- Workshops and meetings as required
- Documentation of process and outcomes in a Technical Report including:
  - Toll traffic demand forecasts and diversion from toll-free demand estimates
  - Gross toll revenue projections, including ramp-up effects and other adjustments
  - Outcomes from tolling I-205 in addition to I-5

3.4 Financial Feasibility Analysis

Primary Responsibility: PB Consult

The Project Financial Feasibility Analysis will look at a variety of project configurations, operations alternatives and financing/funding mechanisms to identify the financial capacity of potential revenue streams and establish a financially feasible set of project alternatives to advance to the DEIS. Potential sources of revenue and funding include all forms of tolling (variable pricing, high occupancy toll lanes, value/congestion pricing, etc. to the extent analyzed in work elements 3.2 and 3.3 above), transit fares (to the extent analyzed in Work Element 7.8.5), development impact fees, special assessment districts, and grants. Financing instruments to be examined include revenue-based bonds and/or other revenue-based credit facilities, state and federal financing such as TIFIA (Transportation Infrastructure Finance and Innovation Act) mechanisms, GARVEE bonds, and other credit options.

The objective will be to identify combinations of alternative highway and transit configurations, tolling schemes, capital costs, operating revenues and costs, and funding and financing mechanisms that show potential to create a feasible and successful project consistent with public policy objectives.

This task includes five sub-elements as described below:

3.4.1 Project Definition

Working with other members of the team, a working definition of "base case" project parameters will be established together with variations of the base case project to be evaluated. The objective is to determine a common set of financial parameters for evaluating alternatives at the "alternative screening" stages.

3.4.2 Identify and Assess Potential Funding Sources

The following tasks relate to identifying potential funding and revenue sources that are not necessarily specific to a single alternative or project delivery method. These activities would take place concurrent with the initial "component screening" of candidate alternatives, but are not intended to be a part of that initial screening stage.

- Identify and discuss the types of funding and revenue sources, order of magnitude amounts, and timing of potential relevant funding and revenue sources.
  - Identify and assess potentially applicable local, state and federal government grants or revenue sources applicable to highway and/or transit elements, including opportunities under the new federal reauthorization, SAFETEA-LU.

  - Summarize the revenue generating potential from tolls based on previous work and identify the financial capacity of this revenue stream for (i) optimum public sector tax-exempt financing, and (ii) for-profit private financing under the long term lease concession model.
  - Identify the range of revenue generation from transit fares based upon input from Work Element 7.8.5.
  - Identify and discuss opportunities and constraints for development impact fees, special assessment districts and beneficial land owner contributions.
- Identify and discuss potentially applicable financing mechanisms, credit enhancement tools, and their applicability under different project delivery methods.

3.4.3 Financial Feasibility Analysis for Alternatives Screening

The following tasks relate to the second stage, "alternatives screening" which will evaluate a no-build and four build alternatives to identify candidate alternatives for the subsequent DEIS process. Based on the project parameters from 3.4.1 and reasonable assumptions for future growth in various socioeconomic variables, a cash flow model will be developed for analyzing and evaluating the financial feasibility of the candidate alternatives. Specific activities include:

- Assemble and review CEVP highway and transit capital cost estimates and phasing plans for each alternative prepared under Work Elements 7.5.2 and 8.4.1.
- Assemble and review highway and transit operating and maintenance cost estimates for each alternative prepared under Work Elements 7.5.3 and 8.4.1.
  - Highway operating costs including roadway and structures maintenance, toll collection, toll-related customer service center and violation enforcement, and funding of appropriate maintenance reserve accounts.
  - Transit service operating and maintenance cost estimates, possibly including a range of costs reflecting the range of mode/alignment alternatives and institutional options being considered, for the opening year and horizon years, together with implementation phasing (to be provided by others).
  - Capital and O&M cost inflation and real growth assumptions.

Building on the work in 3.4.2, the advantages and disadvantages of potential funding and revenue sources, as well as financing mechanisms, will be assessed and discussed with the funding workgroup, project team and/or participating agencies for the purpose of narrowing the range of potential sources to the most reasonable set.

- Assess the ranges of amounts from the narrowed list of revenue and funding sources, tailoring them to the candidate alternatives, and identify assumptions driving inflationary and real growth trends.
- Assess potential relevant financing vehicles and credit enhancement strategies to incorporate within the financial analysis cash flow model.

The Consultant will evaluate the financial feasibility of up to five prototypical highway and transit build alternatives, based on an assumed implementation schedule and the identified array of funding sources and financing mechanisms. This financial feasibility analysis will:

- Identify the financial capacity of the identified stream of revenues and funding — in terms of how much "project" can be supported — for each alternative by modeling to minimize borrowing costs and maximize the leverage of the available net revenue streams after accounting for necessary operations, maintenance and reserve contributions.
- Assess and evaluate the financial feasibility of each alternative, identifying for each alternative the potential financial gap — in terms of project capital investment cost — that is not supported for its revenue and cost assumptions. A limited number of sensitivity tests (up to 5 per alternative examined) will be conducted, varying financial, operating and institutional assumptions (e.g., including with and without I-205 tolls or a potential concession financing arrangement) to identify possible gap closure strategies and likelihood factors.

Assumptions:

- All capital and O&M-related cost estimates and inputs to be provided within other work elements by other team members; capital costs to be provided in mid-year of construction dollars or as otherwise provided per CEVP, with base year amounts and escalation/inflation assumptions provided; annual O&M costs to be provided for multiple years according to variation for implementation schedules, service changes and real growth factors, expressed in base year dollars with appropriate inflationary and real growth assumptions.
- The schedule to deliver the financial feasibility assessments depends on the timely delivery of all inputs, especially the toll revenue forecasts and transit farebox revenue forecasts that are dependent upon the travel demand modeling activities, and the collaborative efforts by the project team to narrow the potential list of funding sources to those most reasonable/applicable for CRC.

Deliverables:

Primary Author: PB Consult

- Participation in up to ten workshops and/or on-site meetings (with two persons per trip) with key leaders within public and private sectors to identify key funding and financing opportunities, analysis inputs and relevant assumptions.
- Technical memorandum documenting the potential toll revenues and other funding/revenue sources and opportunities
- Cash flow and financing model for the "alternatives screening" stage
- Technical memorandum documenting the financial feasibility analysis of the candidate build alternatives, documenting the refined analysis of potential funding/revenue sources and opportunities, financial capacity analysis, and discussion of the potential financial gaps.

3.5 Implementation Strategies for Funding and Financing

Primary Responsibility: PB Consult/Washington State AG's Office

The purpose of this task is to detail the steps, procedures and timetables to implement selected scenarios. Elements of the strategy for each will include:

- Prioritize "critical issues" that may involve significant internal DOTs discussion, public controversy, political risks, and/or legislative action; establish strategies for addressing these critical issues.
  a. Institutional requirements (if any) to own and operate the project.
  b. Public-private cooperative strategies and legislative/policy requirements.
  c. Procurement strategies, contracting approaches, and legislative/policy requirements.
  d. Institutional requirements for tolling, transit operations, local improvement district funding and identification of any enabling legislation required in both WA and OR.
  e. Credit parameters and associated collateral requirements.
- Develop illustrative "Term Sheets" setting out the major provisions of agreements that may be necessary between public parties and between public and private parties.
- Develop timetables for various steps in the implementation process.
- Identify "Work-around" or back up strategies where appropriate.
- Develop provisions for risk sharing and risk management.

Assumptions:

For budgeting purposes, four trips/working group meetings are anticipated. Some working group meetings may be organized in a workshop format.

Deliverables:

Primary Authors: PB Consult/Parametrix/Washington State AG's Office

- Funding, Financing and Institutional Strategies Recommendations Report
  - Provide guidance on legislative packages needed at federal, state and local levels
  - Provide tolling recommendations, including whether to toll I-205
- Legislative Packages for Federal, Washington, Oregon, and Local Jurisdictions
  - Information packages with executive summary explanation of need for legislation, legislation elements required and consequences of not obtaining legislative clearance

Note: All supporting deliverables and work must be completed by fall 2006 to support the January 2007 start of the legislative session if any legislative actions are required at that time.

4.0 COMMUNICATIONS

Purpose

Provide timely and accurate information to stakeholders and the general public in Oregon and Washington to engage their interest, enhance their understanding, and gain their support for the project development process. Provide opportunities for meaningful involvement of stakeholders in accordance with the principles of Context Sensitive Solutions.

4.1 Communications Project Management and Quality Control

4.1.1 Management

Manage delivery of the communications task through quality control of products and processes, coordination and supervision of the communication team, coordination with other project team members, maintenance of the communications element of the project document management systems and database, progress reporting to project management team, and invoice review and preparation.

Assumptions:

- Two 2-hour communication team meetings per month
- One 2-hour meeting with CRC Communications Manager per week
- Eight hours of coordination with other project team members per month
- Review and approval of monthly invoices submitted by subconsultants working on the Communication Task
- Participation in bi-weekly Project Development Team (PDT) meetings
- Participate in bi-weekly Task Leader meetings

Deliverables:

- Weekly updates on communication activities to PDT
- Monthly written progress reports on communications accomplishments
- Quarterly written progress reports on communications accomplishments
- Monthly invoices for communications element
- Memorandum summarizing all public information dissemination and public involvement activities and results at two decision points

4.2 Group Support

4.2.1 Regional Partners Group Support

Provide staff support for RPG including meeting logistics, review and preparation of meeting materials, preparation of meeting notes, meeting follow up with Regional Partners Group (RPG) members, and meeting attendance.

Assumptions:

- 14 RPG meetings

Deliverables:

- 14 meeting agendas and materials
- 14 meeting notes

4.2.2 Communications Working Group Support

Provide staff support including meeting logistics, review and preparation of meeting materials, and preparation of meeting notes; conduct meeting follow up with Communications Working Group (CWG) members; and attend meetings.

Assumptions:

- 4 CWG meetings

Deliverables:

- 4 meeting agendas and materials
- 4 meeting notes

4.2.3 Environmental Justice Working Group Support

Establish and provide staff support to the Environmental Justice Working Group (EJWG) including meeting logistics, review and preparation of meeting materials, and preparation of meeting notes, meeting follow up with EJWG members, and meeting attendance.

Assumptions:

- The group will be comprised of representatives of EJ communities affected by the project in consultation with PDT.

Deliverables:

- Operating protocols
- 10 agendas, supplies and materials
- 10 meeting notes

4.2.4 Task Force Support

Provide staff support for the Task Force including meeting facilitation, meeting notification and logistics, preparation of meeting materials, preparation of meeting minutes and summary, and meeting follow up. Identify key issues, resolve differences and work toward consensus with Task Force members.

Assumptions:

- 10 Task Force meetings/workshops
- 20 internal staff preparation meetings
- 10 meetings with co-chairs
- 4 communication team members attendance at each Task Force meeting and workshops
- 10 hours of individual meetings with Task Force members prior to each of 10 meetings
- Maximum of 80 copies of 30-pages, 2-sided (5 color, 15 black & white) for 10 meetings
- Cable coverage of 10 meetings
- WSDOT audio equipment for Oregon and Washington meetings
- Legal public notices of 3 column inches placed in both the Oregonian and Columbian prior to 10 meetings/workshops

- Press releases for 10 meetings/workshops
- Refreshments from local vendors for 10 meetings/workshops

Deliverables:

- 10 draft and final meeting/workshop agendas, supplies and materials
- 10 draft and final meeting notes
- 10 verbatim meeting records
- 10 draft press releases (WSDOT will finalize and issue)
- 10 draft and final legal notices

4.3 Communications Materials

4.3.1 Printed and Display Materials

Prepare, print, mail/distribute newsletters, fact sheets, and display graphic to support public information and public outreach activities.

Assumptions:

- 15,000 copies of 6-page, 2-color, tabloid size newsletter on initial set of project alternatives for direct mail
- 15,000 copies of 4-page, 2-color, tabloid size newsletter on project alternatives to be considered in EIS for direct mail
- 15,000 copies of 4-page, 2-color, tabloid size newsletter on key topic for direct mail
- 2 sets of 15,000 meeting reminder post cards
- Postage to be covered directly by CRC
- 1,000 copies each of 10 2-page 8.5x11-inch fact sheets
- Kiosks will use same display graphics as developed for public meetings/open houses
- 2 sets of 40 display boards for open houses/workshops
- 20 approximately 1/8-page display advertisement notices for open houses/workshops (10 newspapers each round)
- Provision of a maximum of 3 concepts (one draft, one revision and one final) of each product with consolidated comments provided at each step by CRC

Deliverables:

- 3 newsletters
- 2 meeting reminder post cards
- 10 fact sheets
- Kiosk display graphics
- Open house/workshop display graphics
- Open house/workshop display advertisement notices

4.3.2 Presentation Materials

Provide PowerPoint slides, graphic images, and presentation handouts to support open house/workshops and briefings of media representatives, elected officials, and interest groups. Maintain electronic library of images and presentations on the project management website.

Assumptions:

- Addition of 50 PowerPoint slides to library

Deliverables:

- Continually updated electronic library of images and project presentations on project management website
- 50 PowerPoint slides to add to presentation library

4.3.3 Website Management

Develop updates of website text and graphics, maintain project website, and develop and analyze three web-based surveys.

Assumptions:

- Weekly website updates
- Addition of new "pages" on alternatives and funding/institutional arrangements
- Provision of 3 concepts (one draft, one revision, and one final version) of new website text and graphics with consolidated comments provided at each step by CRC
- CH2M Hill, Inc. will have direct access to website for posting items and managing database that are approved by CRC for posting

4.4 Communications Tracking and Response

4.4.1 Mailing List

Maintain project mailing list for electronic and traditional postal mail on project database to enable printing of mailing labels for newsletters, meeting reminders, website update notices, and electronic mailings.

Assumptions:

- People who provide electronic comments through the website will be added to the list automatically through project database.
- People who attend meetings or provide comments or questions by telephone, letter or e-mail will be added to the mailing list manually on a monthly basis and immediately prior to newsletter, meeting reminder postcard mailings, and electronic mailings.

Deliverables:

- 5 sets of up-to-date mailing labels (for 3 newsletters and 2 meeting reminder postcards
- Monthly updated database of participants in outreach activities (through project database)
- Print out or electronic media records of all postal or electronic mailing patrons for each mailing

4.4.2 Communications Tracking

Monitor the project phone line messages, record comments/questions received through all media in the project comment tracking tool, and coordinate comment response through the STATEs and project team.

Assumptions:

- Assume a maximum of 100 comments requiring response coordination. Coordination includes routing of comment to CRC, following up with those assigned to respond to comment, and forwarding the completed response to the commenter.

Monitor Spanish, Russian and Vietnamese comments on project voice mail and prepare appropriate responses. Assume 30 calls requiring foreign language response

Deliverables:

- Comment and response data base updated to reflect activity

4.5 Information Dissemination

4.5.1 Kiosks

Develop strategy for the content and placement of four low technology kiosks in 15 locations in the first six months of 2006. Update kiosk content and place again at 15 locations at the end of 2006, for a total of 30 venues within this scope timeframe. The kiosks will provide information on project context and later highlight the range of feasible alternatives being considered.

Assumptions:

- Purchase of four 6-foot high by 5-foot wide free-standing kiosks.
- Possible kiosk sites include art venues (museums, performing arts centers), coffee shops, Expo Center, government centers (City of Portland lobby, social services offices), grocery and multi-department stores, libraries, malls, public events, community centers, and schools. Photograph documentation of kiosk content and locations will be provided.

Deliverables:

- 2 sets of three kiosk displays
- Digital photos of the displays at each location
- Schedule of kiosk locations

4.5.2 Community Events

Organize and staff information tables/booths at up to 20 community events/locations, during 2006. Events may include the downtown Vancouver farmers' market, various Portland farmers markets, North Portland neighborhood fairs, cultural events, county fairs, Expo Center events, and other populated venues, such as Jantzen Beach Super Center.

Assumptions:

- Events will be staffed for an average of 4 hours each, including one CONSULTANT. Assume DOT and Regional Partner staff participation to supplement CONSULTANT staff at each location.

- No original materials; materials for these events will have been developed for other activities.

Deliverables:

- Schedule of locations, dates and staffing assignments
- Digital photos of the displays at each location
- Master summary of events (dates, locations, number of visitors, materials displayed, questions/comments received)

4.5.3 Speakers Bureau

Develop and implement a speakers' bureau to deliver information about the project at neighborhood and community events, faith services and gatherings, schools and school events, business organizations, fraternal organizations, senior centers, and community and professional associations. The speakers' bureau kit will contain a minimum of a PowerPoint presentation, speaking points, and existing public information materials. Presentations are expected to be scheduled primarily from March through October in 2006.

Assumptions:

- The "request a speaker" feature of the website will provide an avenue for organizations to access speakers' bureau resources.
- Project team will outreach to key groups and organizations for potential presentations.
- Materials provided in other tasks will be used; no new material development is included in the budget for this task.
- A maximum of 40 speaker's bureau presentations will be scheduled, divided between Oregon and Washington.
- CRC and/or RPG representatives will participate in every presentation; one CONSULTANT team member will participate in up to 20 presentations; roles will vary by presentation.
- CRC and/or RPG participants will provide projector, lap top and screen.

Deliverables:

- Mailing list of organizations to be approached to schedule speakers
- Draft and final invitation letter
- Schedule of presentations and staffing assignments for a maximum of 40 presentations (20 presentations staffed by one CONSULTANT)
- 6 versions/updates of presentation talking points/script
- Speakers' bureau kit for a maximum of 40 presentations (including CD of presentation, speaking points, and handouts)
- Summary of a maximum of 40 presentations (dates, locations, number of attendees, materials presented, questions/comments received

4.6 Public Involvement

4.6.1 Public Open Houses/Workshops

Conduct two rounds of open houses/workshops in Portland and Vancouver to inform and engage the public, and to obtain public input at each decision point. One round is expected to occur in February-March 2006; the second round is expected to occur in October-November 2006. These open houses/workshops will provide opportunities for:

- Public feedback on initial range of components and alternative packages
- Public feedback on the short list of alternatives to analyze in the DEIS

Assumptions:

- 2 events will be scheduled during each round (one in Portland and one in Vancouver) totaling 4 events during the course of this scope.
- Display advertisements of approximately 1/8-page announcing meetings will be placed in 10 newspapers for each round of events.
- Newsletters will serve as open house/workshop invitations (included in Task 4.3).
- Postcard reminders will be mailed prior to each round of events (included in Task 4.3).
- Public meetings team will meet 6 times for 3 hours each to plan events (in addition to regular communication team meetings).
- 6 communication team members will participate in each event.
- 8 senior technical team members will participate in each event (56 hours per person including planning, preparation, and participation for both rounds). These are assumed to be CRC task leaders; their time is not budgeted in this scope element.
- CRC and Regional Partner representatives will participate in every event.
- Meeting venue costs and refreshments are included in the budget.
- 1 interpreter is expected to participate in each meeting.

Deliverables:

- Schedule and staffing assignment spreadsheet for each round of events
- Pre-event planning meeting for project team open house/workshop participants
- Pre-event preparation meeting for project team open house/workshop participants
- Meeting agendas, supplies, equipment, presentations, display boards, and handout materials
- Digital photography documentation of each event
- Meeting documentation/summary for each event

4.6.2 Environmental Justice Community Outreach

Coordinate with local communities and community-based organizations (CBOs) to develop appropriate strategies for outreach to Limited English, minority, and low-income communities. Identify and build relationships with key CBOs that represent the EJ communities in the project area. Provide timely and relevant information about the project and gather EJ community input

at key milestones. Offer CBO's membership opportunities to participate in the outreach to their communities. Create partnerships that utilize the CBO's influence to relay information to their constituencies and encourage participation from others. Community members, including EJWG members, will be contracted to disseminate appropriate information, host community meetings, translate materials, and offer interpretation services.

Assumptions:

- Host up to 8 small community meetings tailored specifically for EJ communities, such as Spanish-speaking, Russian, Vietnamese, and applicable social services for low-income.
- Coordinate with a maximum of 12 connected community members/organizations to disseminate information through approaches such as surveying, distributing flyers at community events, contacting community in local retail and service business locations, and phone banking to advertise meetings.
- Tailor outreach methods to enable EJ audiences to be included and feel welcome to participate, for example:
  - Utilize bilingual and bicultural staff and volunteers, preferably who live in the project area, for targeted outreach efforts
  - Work with media of color (print, radio, and local cable), including LEP media
  - Locate meetings in important community sites at accessible times and address reasonable barriers to participation (childcare, interpretation, etc.)
  - Provide contact numbers for translations of public information
  - Provide refreshments/light meals at public gatherings
  - Translate materials and have interpreters available at meetings

Deliverables:

- Invitations, agendas, supplies, presentations, and materials for a maximum of 8 community meetings
- 8 meeting summaries
- Targeted community survey efforts to coincide with 2 rounds of outreach activities
- Summaries of survey results
- Project information fact sheets translated into Spanish, Vietnamese, and Russian
- 8 flyers for various events in Spanish, Vietnamese, and Russian

5.0 TRANSPORTATION PLANNING

The purpose of this task is to advance the Columbia River Crossing transportation alternatives through Phase 1 and into the DEIS. Major elements of this task are the development of study parameters, data collection, component and alternatives screening, transportation analysis of baseline and build alternatives, and support for other tasks, including environmental and design.

To accomplish these elements, the transportation planning task is broken down into 17 subtasks, which are listed below. Significant assumptions and deliverables are listed under each subtask.

5.1 Transportation Project Management and Quality Control

The CONSULTANT will manage all individual work elements related to transportation planning, participate and collaborate with other task managers on related work items, and oversee progress reporting.

5.1.1 Transportation Planning/Traffic Operations Team Management

- Manage daily activities of the transportation planning/traffic operations team.
- Prepare for and facilitate weekly team meetings. Prepare meeting summaries.
- Coordinate and provide staff support to the Modeling Working Group.
- Coordinate and provide staff support to the Transit Working Group.
- Coordinate and provide staff support to the Freight Working Group.
- Manage transportation-related data and information.
- Develop deliverables outlines and styles.

5.1.2 Task Management and Progress Reporting

- Participate in bi-weekly PDT meetings (Transportation Task Leader and Deputy) and collaborate with other working groups.
- Prepare monthly progress reports and maintain project log.

5.1.3 Quality Control

The CONSULTANT will provide quality control for all deliverables submitted under Task 5. The quality control will include review of all submittals and processes. The Transportation Team leader will designate an independent quality control reviewer for each major deliverable.

Deliverables:

- Preparation of Transportation Planning/Traffic Operations Team meeting summaries
- Development of deliverables outlines and styles
- Preparation of monthly progress reports

5.2 Agency and Public Outreach Support

The CONSULTANT will provide support to public agencies and for the project's public outreach elements.

5.2.1 Agency Support

Meetings and coordination with public agencies, including WSDOT, ODOT, RTC, Metro, Clark County, City of Vancouver, and City of Portland.

5.2.2 Public Outreach Support

Preparation for public outreach events, including open houses.

Assumptions:

- Attendance at public outreach events included in Task 4.0.

- Maximum of 180 person-hours for Task 5.2.2.

Deliverables:

- Preparation of meeting summaries

5.3 Develop Study Parameters

The CONSULTANT will coordinate with the Transportation Planning/Traffic Operations team, the Modeling Working Group, the Transit Working Group, and the Freight Working Group to develop or refine travel demand and traffic operations methodologies, develop measures of effectiveness, and support refinement of the Problem Definition and Purpose and Need. Some of these elements were initiated in Task AB, as noted below.

5.3.1 Develop Travel Demand and Traffic Operations Methodologies

- Define project study area for modeling analysis (Task AB).
- Determine study area roadways.
- Determine existing and future study years and obtain approval from FHWA and FTA (Task AB).
- Determine study periods (e.g., weekday daily and/or peak periods, weekend daily and/or peak periods).
- Develop list of future year background projects (Task AB).
- Gain consensus on land use allocations to support travel demand modeling.
- Establish travel demand and traffic operations methodologies.
- Establish operational evaluation standards.
- Prepare methodology report.

5.3.2 Develop Screening Criteria and Measures of Effectiveness

- Facilitate development of preliminary component and alternatives screening criteria/measures of effectiveness with Transportation Planning/Traffic Operations team, Modeling Working Group, Transit Working Group, and the Freight Working Group.
- Document component and alternatives screening criteria.

5.3.3 Support Refinement of Problem Definition and Purpose and Need

- Support refinement of the Problem Statement and Purpose and Need. This was initiated in Task AB but will be refined during Task AC.

Assumptions:

- 2 peak periods (each period not exceeding three continuous hours) and one daily period to be analyzed.
- Background project list provided by WSDOT, ODOT, RTC and Metro consistent with Metro's RTP and RTC's MTP (assumes consistency with regional and local plans).
- Land use allocation is static and consistent for all build scenarios and for all tolling scenarios.

Deliverables:

- Preparation of methodology report
- Documentation of screening criteria and measures of effectiveness
- Refined Problem Definition and Purpose and Need

5.4 Transportation Data Collection Plan

Initial transportation data was collected in Task AB. This data was collected to commence calibration of Metro's travel demand model. Additional transportation data will need to be collected to establish baseline transportation conditions for traffic operational analysis, for supplemental input to the travel demand model, to assist in managed lanes analysis, and to support freight analysis needs. The CONSULTANT will develop a transportation data collection plan and collect transportation data.

5.4.1 Determine Data Needs and Data Collection Approach

- Determine data needs (traffic and freight counts, queuing, travel times, origin-destination, occupancy, etc.).
- Prepare data needs summary memorandum.

5.4.2 Collect and Compile Data

- Develop transportation data collection approach and identify resources.
- Collect and compile transportation data. Data collection, excluding freight data, is assumed to cost $35,000 for subcontractor fees.
- Data related to freight will be collected. The budget assumes collecting and compiling freight data for up to 10 locations along the corridor or at affected interchanges. This could include daily truck classification counts, hourly truck classification counts, merge speeds for trucks, travel time by time of day, commodity information and other key freight parameters.
- Prepare interactive transportation data summary report.

Assumptions:

- Agencies (e.g., WSDOT, ODOT, RTC, Metro, City of Vancouver, City of Portland) will provide requested existing traffic data (within three years old).
- WSDOT will prepare a report and summarize truck data as a part of their ongoing truck data study.
- Portland Freight Study data will be provided to the CONSULTANT.
- Transportation data, excluding freight data needs, will be collected by subcontractor. Subcontractor costs will not exceed $35,000.

Deliverables:

- Preparation of data needs summary memorandum
- Preparation of interactive transportation data summary report

5.5 Baseline Transportation Analyses

The CONSULTANT will conduct transportation analyses of existing conditions and for one future year No Build condition.

5.5.1 Develop Functional Description Report of Existing and Future No Build Conditions

- Develop consensus on one future year No Build alternative.
- Document future year No Build alternative description.
- Develop functional description report documenting highway and transit networks to be modeled. Report will consider both existing conditions and future no build conditions.

5.5.2 Travel Demand Forecasting

- Develop roadway and transit networks. Code networks on hardcopy network plots provided by Metro networks for import into VISUM.
- Define model output measures of effectiveness.
- Coordinate with Modeling Working Group, Transit Working Group and Metro/RTC in traffic and transit forecasting.
- Provide VISUM coordination and feedback of modeling results.
- Participate in VISUM training session (four staff for three days each).

5.5.3 Model Post-Processing

- Conduct post-processing of VISUM output for existing conditions and one future year No Build alternative.
- Gain consensus on post-processing methods and document results.

5.5.4 Traffic Operations Analysis

- Conduct freeway analyses using VISSIM for I-5 corridor operations, including ramps junctions.
- Account for managed lane operations and ramp metering, as appropriate.
- Conduct ramp terminal and local intersection analyses using Synchro/SimTraffic.
- Perform transportation analyses using appropriate measures of effectiveness and/or by comparing traffic volume changes for study area highways.
- Prepare draft traffic operations report.

Assumptions:

- The future year No Build alternative will be a single alternative, i.e., no more than one No Build alternative will be analyzed. Metro will re-calibrate the travel demand model based on recent traffic counts and origin-destination information. In particular, all I-5 segments and ramps between 219th and I-84 will be recalibrated for all peak periods.
- Metro/RTC will conduct all travel demand modeling work; the CONSULTANT will code hardcopy network plots for use by Metro/RTC.
- VISSIM analysis will be limited to I-5 between 219th and north of the Marquam Bridge.

- Synchro/SimTraffic analysis will be limited to the assessment of 70 intersections and two two-hour time periods per intersection, unless intersections are estimated to operate at saturated conditions.
- Safety analysis will not be undertaken as an element of this task.
- Final traffic operations technical report will be prepared during Phase II.

Deliverables:

- Documentation of future year No Build alternative description
- Development of functional description for No Build alternative
- Conducting of post-processing of VISUM output for existing conditions and one future year No Build alternative
- Development of Transportation Discipline Report

5.6 Develop Range of Modal Components and Perform Component Screening

The CONSULTANT will support the development of the initial range of modal components (each component is a single mode) to be used in the NEPA scoping process. The CONSULTANT will provide support at public meetings and will prepare descriptions of components focused on transportation-related aspects. Using up to 10 transportation-related evaluation criteria developed as part of Task 5.3, the CONSULTANT will assist in the screening the components such that a maximum of five multi-modal Build alternatives (consisting of improvements for multiple modes) that will undergo detailed transportation analyses and design refinement as part of separate subtasks.

Assumptions:

- Up to 10 components will be developed and documented.
- The component screening will be conducted using available transportation performance data, e.g., from the I-5 Partnership study. The screening will be "threshold level" screening, i.e., "fatal flaw" assessments.
- Graphical support will be provided by others.

Deliverables:

- Development of descriptions for up to 10 components
- Development of draft screening report

5.7 Transportation Analyses of Build Alternatives

The CONSULTANT will conduct transportation analyses for up to 4 future Build alternatives resulting from Task 5.6. One of these alternatives will be the Transportation Demand Management (TDM) Baseline alternative.

5.7.1 Develop Functional Description Report of Future Build Alternatives

- Document alternative descriptions for up to 4 Build alternatives.
- Develop functional description report documenting highway and transit networks to be modeled for the Build alternatives.

5.7.2 Travel Demand Forecasting

- Develop roadway and transit networks. Code networks on hardcopy network plots provided by Metro for import into VISUM.
- Confirm model output measures of effectiveness.
- Coordinate with Modeling Working Group, Transit Working Group and Metro/RTC in traffic and transit forecasting.
- Provide VISUM coordination and feedback of modeling results.

5.7.3 Model Post-Processing

- Conduct post-processing of VISUM output for the Build alternatives.
- Document post-processing results.

5.7.4 Traffic Operations Analysis

- Each Build alternative will be distinct and will not represent a range of options.
- Conduct freeway analyses using VISSIM for I-5 corridor operations, including ramps junctions.
- Account for managed lane operations and ramp metering, as appropriate.
- Conduct ramp terminal and local intersection analyses using Synchro/SimTraffic.
- Perform transportation analyses using appropriate measures of effectiveness and/or by comparing traffic volume changes for study area highways.
- Analyze the I-5 toll diversion impacts, including route, mode, time of day and destination shift forms of toll diversion and their effects on the rest of the network, including I-205.
- Prepare draft traffic operations report.

Assumptions:

- Up to 4 future Build alternatives will be analyzed for one future year. Up to 1 of these may be a tolling alternative.
- Metro/RTC will conduct all travel demand modeling work; the CONSULTANT will code hardcopy network plots for use by Metro/RTC.
- VISSIM analysis will be limited to I-5 between 219th and north of Marquam Bridge.
- Synchro/SimTraffic analysis will be limited to the assessment of 70 intersections and 2 two-hour time periods per intersection, unless intersections are estimated to operate at saturated conditions.
- It is not assumed that toll plaza operations will be modeled. A new work order would be developed to model toll plaza operations.
- Final traffic operations technical report for Build Alternatives will be prepared during Phase II.

Deliverables:

- Documentation of future year Build alternative descriptions (up to 4 alternatives)
- Development of functional description

- Conducting of post-processing of VISUM output for future Build alternative
- Development draft traffic operations technical report

5.8 Alternatives Screening

Using the results of Task 5.7, the CONSULTANT will apply transportation-related screening criteria to the Build alternatives to assist in narrowing the number of alternatives that are to be carried into the DEIS. The CONSULTANT will document the screening process.

Assumptions:

- The screening will be conducted using available transportation data, including data developed in Task 5.7.
- Screening criteria will be limited to that developed in Task 5.3.2.
- No new travel demand modeling, traffic operations modeling, or other analysis will need to be conducted (other than that performed in Task 5.7) to support this task.

Deliverables:

- Development of draft screening report

5.9 Freight Analysis

The freight analysis will support design decisions associated with developing and narrowing the alternatives to be evaluated. The freight analysis will complete a truck freight operations analysis that focuses on the freight needs at up to 10 existing interchanges along I-5 and I-205 north of Columbia Blvd. and south of SR 500, and one future interchange on I-205 in Washington State between Mill Plain Blvd and SR 500. This information will be advanced through the Existing, Future No Build and five Future Build scenarios.

The Freight Working Group will review and comment on the work completed by the Freight Analysis team. The Freight Working Group will identify issues and questions related to freight that would need to be addressed. The chair of the Freight Working Group will conduct interest group discussions to identify issues and questions to be addressed during later phases of the study.

5.9.1 Develop Freight Analysis Parameters

The freight analysis team will work in a collaborative manner with the technical staff completing analyses of: travel demand modeling, traffic operations, air and noise quality, fuel consumption, safety analysis, tolling, and economic impacts.

The CONSULTANT will establish coordination on technical matters (variables/methodologies, etc.) between freight mobility and travel demand forecasting team:

- Establish freight analysis parameters for travel demand and traffic operations methodologies.
- Compare and resolve use of findings of truck movements in corridor from Metro/RTC forecast with Commodity Flow Forecast.

- Determine how new intermodal terminals and/or freight logistics changes – Reynolds site, Columbia Gateway, BNSF/UP terminals—should be integrated into the travel demand forecasting model.
- Identify truck operating cost impacts.
- Review model assignment of trucks based on future land use scenarios.

The CONSULTANT will establish coordination on technical matters (variables/methodologies, etc.) between freight mobility and traffic operations team:

- Review truck performance and operating parameters in the traffic operations models (e.g., VISSIM and Synchro/SimTraffic).
- Review traffic simulations with respect to truck operations to make sure current operation reflect actual observations.
- Review future traffic simulations of alternatives.

The CONSULTANT will establish coordination on technical matters (variables/methodologies, etc.) between freight mobility and environmental resource teams (Safety, Air and Noise Quality, Economics):

- Identify truck operating cost impacts to CRC economic impacts analysts.
- Support effort to identify economic impacts to carriers, shippers, consumers, etc., based on travel delay to CRC economic impacts analysts.
- Support effort to identify economic impacts to carriers, shippers, consumers, etc., based on travel delay to CRC toll analysts.
- Support effort to determine best database for use in accident analyses, and safety provisions for truck movements with Safety team.
- Identify air and noise emissions of different truck types with air and noise quality team(s).
- Identify fuel consumption of different truck types for both economics and air quality teams.

As needed, the CONSULTANT will provide expertise/resources to various members of the team regarding truck equipment types, dimensions, etc., and regulations that govern truck drivers and truck movements (e.g., hours of service regulations, oversized-load regulations, horizontal/vertical clearances, load rating, etc.) that may be critical to understanding before developing operations findings and establishing future alternatives.

Assumptions:

- The coordination and information provided under this subtask is assumed to occur as part of the subtask items described elsewhere in Task 5.

Deliverables:

- Technical memorandum with appropriate citations describing the technical analysis needed for the Freight Analysis and how it needs to be coordinated with the travel demand analysis, traffic operations, air and noise quality, fuel consumption, safety, tolling and economic analysis teams.

5.9.2 Freight Transportation Analyses

The Freight Analysis team will conduct transportation analyses for existing conditions, one future No Build, and for 4 future Build alternatives. Related tasks will include, but not be limited, to the following:

- Develop functional description report documenting changes that would affect truck movements.
- Prepare graphic and tabular summaries of existing truck volumes at key locations.
- Extract pertinent future freight information from the travel demand forecasting model (to be prepared by Metro).
- Document future truck volumes at key locations and compare to existing volumes.
- Review traffic operations (to be prepared under Task 5.7) and extract results pertinent to the freight analysis including I-5 corridor operations, travel times, and operations at key freight ramps.
- Compare Existing Conditions findings with Future Baseline findings and determine the contribution by trucks to congested locations.
- Evaluate up to 10 origins/destinations to, from and along I-5 by truck type (medium and heavy) for Existing and Future No Build conditions.
- Identify infrastructure, traffic control, etc., impediments to truck travel.
- Evaluate the effects of various logistics and contingency plans utilized to overcome congestion.

Assumptions:

- The future year No Build alternative will be a single alternative, i.e., no more than one No Build alternative will be analyzed in conjunction with Build Alternatives
- All travel demand modeling work will be performed by Metro/RTC and analyzed under Tasks 5.5 and 5.7

Deliverables:

- Technical memorandum on Existing Truck Conditions, including truck volumes, origin and destination patterns, corridor travel times, and truck accident data
- Technical memorandum on Future No Build and Future Build Truck Conditions in same format as above
- Information regarding truck operations cost impacts that can be used by analysts preparing air and noise quality, fuel consumption, safety, tolling and economics analyses

5.10 Marine and Aviation Analysis

The marine and aviation assessment aims to reveal the restricting features of the marine traffic on the Columbia River and the aviation traffic from Pearson Airpark and Portland International Airport. Most of the information used in this subtask will be based on existing reports completed as part of the I-5 Trade Partnership.

5.10.1 Assess Marine and Aviation Issues

The CONSULTANT will compile marine and aviation documents from previous Trade Partnership work:

- Technical Memorandum #B.3.4 "Boat Survey" prepared by Parsons Brinckerhoff on November 15, 2004
- Working Paper 2.8 "I-5 Bridge/Highway Alternatives" prepared by DEA and Parisi Associates on September 13, 2004

The CONSULTANT will review existing planning documents for the Ports of Vancouver and Portland, U.S. Army Corps of Engineers (USACOE), and Pearson Airpark for compliance with project Build alternatives. The CONSULTANT will search for applicable planning documents to enable the project Build alternatives to be in compliance with these documents.

The CONSULTANT will review collision reports and crash history of marine and aviation near the Interstate Bridge for the last five years. The CONSULTANT will:

- Request new five-year crash data for the Columbia River between river miles 104.5 and 107.5 from the U.S. Coast Guard, USACOE, or Multnomah/Clark County Sheriff departments
- Request new five-year crash data for the Pearson Airpark and airspace over the Interstate Bridges from the Federal Aviation Administration
- Review the five-year crash data to establish existing systemic safety trends that may exist. Crash characteristics to be reviewed consist of time of day, weather, location, cause, crash severity, and occurrence of crashes involving commercial and recreational aircraft/vessels.

The CONSULTANT will develop graphics and narrative to summarize crash issues, if deemed pertinent to the project's Build alternatives. The CONSULTANT will prepare an aviation and marine traffic memorandum.

The CONSULTANT will review bridge-related concepts and evaluate such concepts based upon marine and aviation needs as a part of the screening process.

- Prepare draft and final marine and aviation traffic memoranda
- Present final memorandum to the Project Management Team

Assumptions:

- The future year No Build alternative will be a single alternative, i.e., no more than one No Build alternative will be analyzed in conjunction with Build Alternatives

Deliverables:

- Existing Conditions Aviation and Marine Traffic Memorandum

5.11 Managed Lane Analysis

The Columbia River Crossing Study and DEIS will consider implementing managed lanes as part of or as stand-alone alternatives. The managed lane analysis will support and provide information to the highway operations analysis as well as the transit alternatives analysis. This

assessment will also support and provide input to potential tolling or pricing considerations, such as High Occupancy/Toll lane(s).

The assessment will support the screening of initial transportation components leading toward a formal range of alternatives to be forwarded into the DEIS. Further managed lane assessment during the DEIS will be addressed in a statement of work to be developed at a later date.

The analysis will begin by identifying the various forms of managed lanes in use today. The discussion will be exclusively focused on roadway lanes used by rubber-tire vehicles. The assessment will address the characteristics that are supportive of a successful facility as they relate to the I-5 corridor. Where deemed initially feasible, managed lane concepts will be developed for integration with emerging corridor concepts. Feasibility used herein refers to operations, conceptual design, and access; and not to financial feasibility. Managed lane concepts will be functionally described to a level of detail needed to support regional travel demand modeling, conceptual design, and operations analysis during study of alternative packages.

5.11.1 Identify the Policy Context and Orientation Related to Managed Lanes

This task involves a review of relevant State, regional, and local statutes and policies related to implementation and operation of managed lanes in Washington and Oregon. It will also include a summary of existing data, such as counts, projections, etc. relevant to the discussion of managed lanes. The CONSULTANT will:

- Review federal, state, regional, and local statutes, policies, and goals as they relate to managed lanes in the I-5 corridor.
- Summarize the long-range planning context for managed lanes in the I-5 corridor.
- Summarize lessons learned in the I-5 corridor related to managed lanes and previous studies.
- Summarize into a memorandum for committee review.

In addition, the CONSULTANT will provide the public and technical staff with an overview of managed lane concepts and the facility design and operational characteristics generally needed for safe and successful implementation. This overview is likely to occur as a segment of project scoping. The intent is to educate and increase awareness of managed lane concepts to support emergence of quality ideas during scoping.

Assumptions:

- Managed lanes will not be reviewed in the context of tolling during this phase.

Deliverables:

- Prepare summary memorandum of policy context for managed lanes
- Prepare managed lane supporting materials and attendance at up to 4 scoping meetings
- The managed lane sub-team will provide peer review functions specific to managed lanes as needed throughout the DEIS process

5.11.2 Establish Existing Condition Travel Patterns Specific to Managed Lane Assessment

The CONSULTANT will collect and compile AM and PM peak period counts of multi-occupant vehicles, hybrid vehicles, trucks, and single-occupant vehicles where existing data is not available (up to 3 counts for each peak period). Please note that this effort is included and budgeted through the highway data collection plan (Task 5.4).

Data will be used to establish prevailing origin and destination travel patterns and levels of potential user groups (e.g., HOVs, hybrids, commercial vehicles) in the I-5 study corridor. An understanding of travel patterns will ultimately help guide the refinement of design concepts focusing for example on where direct access should be provided to a managed lane.

Assumptions:

- Data and analysis will focus along I-5. Data along I-205 will be limited to the I-205 crossing of the Columbia River.
- Assessment will be based on information currently available or anticipated by spring 2006. This will likely not include any new regional travel demand modeling or new traffic operations modeling.
- The CONSULTANT will coordinate results and findings with the Modeling Working Group.

Deliverables:

- Prepare summary memorandum of prevailing traffic conditions and their affect on managed lane outcomes

5.11.3 Identify Forms and Characteristics of Managed Lanes

The CONSULTANT will identify common ways to create physical space for managed lanes in a corridor and key issues to be considered, including:

- Add new lane(s) dedicated for managed lane use (cost, right-of-way needs, impacts, etc.)
- Convert existing lane(s) for managed lane use (impact on adjacent lane operations)
- Combination of new lanes and conversion of existing lanes

Variations in managed lane strategies generally revolve around the identified user groups that are allowed access to the lane. The most common examples include:

- High occupancy vehicle (HOV) lanes
- High occupancy toll (HOT) lanes
- Truck only lanes
- Bus only lanes
- Other favored user groups (hybrid vehicles are gaining status around the U.S.)

In the case of truck only lanes, establish the characteristics that are typically required to deem a truck only facility feasible such as corridor truck percentage. Other physical facility and operational characteristics that must be addressed when considering managed lanes include:

- Degree of access to lane (direct connection, ramp bypasses, reversible lanes, etc.)
- Time management of lane (all day, peak periods only, other)

- Special technology needed to operate and enforce the lane
- Physical facility characteristics (presence and width of shoulders, areas for enforcement and incident response, maintenance, etc.)
- Tolling or pricing strategy(ies)

Assumptions:

- Only those managed lane concepts reasonably compatible with recommendations for the I-5 corridor emerging from the I-5 Partnership Strategic Plan will be covered.
- Managed lane travel demand modeling and analysis will not be completed under this subtask.

Deliverables:

- Prepare summary memorandum depicting and describing potential managed lane concepts suited to the I-5 corridor

5.11.4 Narrow Range of Initial Managed Lane Concepts

Building upon the information gathered in the previous subtasks, the CONSULTANT will coordinate with the Modeling Working Group to review managed lane ideas that emerge from project scoping. This effort will aim to identify project objectives with regard to managed lanes and apply screening criteria universally to all components as well as those specific to managed lanes. The CONSULTANT will screen managed lane concepts and document reasons for recommending advancement of concepts.

To the extent possible, the universe of managed lane concepts will be narrowed based on information currently available or anticipated by spring 2006. This will likely include minimal new regional travel demand modeling or new traffic operations modeling and will attempt to draw on, where possible, already-completed model runs or analysis.

The CONSULTANT will relate the factors that support successful managed lane implementation to conditions present or planned in the I-5 corridor based on the most recent work completed during the I-5 Transportation and Trade Partnership for the purpose of assessing initial feasibility of managed lane ideas and for new alternatives identified through the DEIS scoping process. Again, feasibility used here refers to operations, conceptual design, and access and not to financial feasibility. For example, if current and forecast truck movement within and through the I-5 corridor is below established target feasibility thresholds, a truck-only managed lane concept may be recommended to be dropped from further consideration.

For managed lane concepts recommended to advance for further evaluation, the CONSULTANT will recommend specific facility design, access, and operational characteristics to support effective managed lane results as the CRC concepts alternatives are packaged.

Assumptions:

- Managed lanes will not be reviewed in the context of tolling during this phase.
- A member of the managed lane sub-team will need to work within the design, transit, and traffic operations teams as needed.

Deliverables:

- Summary memorandum reviewing managed lane ideas emerging from the scoping process and recommendations to either drop ideas or conduct design/operations refinement for those deemed feasible to advance

5.11.5 Study Managed Lanes as Part of Alternative Packages

Managed lane ideas advanced beyond initial screening may be packaged with other transportation components to form one or more alternative packages for detailed study during Phase I. To support this study, managed lane concepts will be functionally described to a level of detail needed to support regional travel demand modeling, conceptual design, and operations analysis.

Assumptions:

- Provide consistency with traffic operations analysis described in Task 5.7.
- Evaluate managed lane ideas only insofar as they relate to one of the 5 future Build alternatives to be analyzed under future conditions.
- Utilize VISSIM analysis to evaluate managed lane effects limited to I-5 between 219th and north of Marquam Bridge.
- It is not assumed that toll plaza operations will be modeled. A new work order would be developed to model toll plaza operations.

5.11.6 Prepare Managed Lane Memorandum

The CONSULTANT will:

- Prepare draft and final managed lane memorandum.
- Present final memorandum to the PDT.

Assumptions:

- Assessment will be based on information currently available or anticipated by spring 2006. This will likely not include any new regional travel demand modeling or new traffic operations modeling.
- Minimal new modeling or operational analysis will be conducted during this Phase 1 scope that leads up to initiation of the alternatives evaluation.

Deliverables:

- Draft and final managed lane memorandum

5.12 Pedestrian and Bicycle Analysis

The CONSULTANT will conduct a review of the existing pedestrian and bicycle network within an area bounded by SR 500 to the north and Columbia Boulevard to the south, and within ½-mile east and west of I-5. The review will focus on available pedestrian and bicycle routes and their connectivity along and across the I-5 corridor. The CONSULTANT will conduct a detailed field review focusing on accessibility (including ADA-compliance) to and across the existing

Interstate Bridges between downtown Vancouver and Marine Drive. In addition, the CONSULTANT will review relevant pedestrian, bicycle and Americans with Disabilities plans.

Based on the above review, the CONSULTANT will prepare a technical memorandum, with illustrations, identifying existing pedestrian and bicycle deficiencies.

The CONSULTANT will assist in the screening of components (Task 5.6) and in the screening of alternatives (Task 5.8) for factors related to pedestrian, bicycle and disabled persons circulation.

Assumptions:

- None.

Deliverables:

- Existing conditions pedestrian and bicycle circulation technical memorandum
- Input to draft screening reports for pedestrian and bicycle-related criteria

5.13 Access Management

The CONSULTANT will initiate development of access control measures that are relevant to the various build alternatives that will be analyzed. Development of access control will be accomplished in coordination with the NEPA process and will extend beyond this scope of work.

In Oregon, the CONSULTANT will initiate development of an Interchange Access Management Plan (IAMP) in accordance with ODOT guidelines. Interchanges between Columbia Blvd. and the Columbia River will be included in one management plan. Work under this phase will include:

- Development of the IAMP definition, background, and authority. Work includes a problem statement that relates to access management, description of the interchange function, goals and objectives for preserving access, and description of the management area to be included in the management area boundaries.
- Development of existing conditions inventory and data analysis. Work includes data gathering, processing and preparation of background technical memoranda, regulatory framework, existing land use, transportation facilities and traffic operations, and natural and cultural resources. Development of this work will be in coordination with the NEPA process.
- Development of future conditions analysis. Work includes analysis of future conditions to identify issues and problems, land use, and forecast traffic operations.

In Washington, the CONSULTANT will initiate data collection in accordance with WSDOT guidelines for an Access Point Decision Report (APDR) that will be prepared in the next project phase.

Assumptions:

- Work under this phase will evaluate a wide range of components and alternative packages that will be narrowed to those carried forward into the DEIS. The intent of initiating the IAMP and APDR process is to help guide development of access management strategies that will be further evaluated in the DEIS.

- Development of the IAMP and APDR will be coordinated with the NEPA process. Public outreach required for preparation of the IAMP will be integrated with other planned outreach events.

Deliverables:

- Up to 5 meetings with ODOT staff to coordinate initiation of IAMP process
- Memorandum that documents IAMP process through development of definition, background, authority, and existing and future conditions analysis
- Data collection required for development of the APDR under the next phase of work

5.14 Traffic Support for Design Engineering

The CONSULTANT will support the highway design team by conducting traffic analyses to support design efforts.

Assumptions:

- Traffic support will consist of traffic capacity and operations studies using the most recent and available information.

Deliverables:

- Technical memorandums documenting traffic operations and design parameters

5.15 Traffic Support for Financial Structures Tasks

The CONSULTANT will support the financial structures team by coordinating with the transportation planning/traffic operations team and the Modeling Working Group and assisting in the development of tolling scenarios, post-processing methods, and analysis of preliminary travel forecasts for toll crossing, parallel highways, and local arterial networks.

Assumptions:

- Toll revenue forecasting will be developed under Task 3.0.
- Task 5.14 will be undertaken during the second screening analysis (Task 5.8).
- Up to 1 tolling scenario will be evaluated in Task 5.14.

Deliverables:

- Technical memorandums documenting post-processing and travel forecasts

5.16 Traffic Support for Environmental Tasks

The CONSULTANT will support the environmental screening of Build alternatives by providing transportation-related data for neighborhood traffic diversion (if appropriate), air quality and noise assessments.

Assumptions:

- Transportation data will be provided for alternatives screening only.

Deliverables:

- Technical memorandum summarizing data for environmental screening

5.17 Traffic Support for Other Tasks

The CONSULTANT will support other task managers and groups to develop joint CRC project deliverables, as needed. For example, the CONSULTANT may produce animated traffic simulations for use with the Communications Team.

In addition, the CONSULTANT will provide support, as needed, to the Transit and Implementation Teams.

Assumptions:

- The level of traffic support for other tasks will be based upon a not-to-exceed level of effort, as shown in the budget.

Deliverables:

- Meeting attendance, technical memorandums, as appropriate

6.0 ENVIRONMENTAL

The purpose of this task is to provide environmental data, analysis and strategy as well as agency coordination and public involvement support that will allow the CRC project to advance through NEPA scoping, alternatives development and screening, and to be prepared to initiate the DEIS on a short range of reasonable alternatives. Primary work to be completed under Task AC includes:

- Resource Agency Coordination and Regulatory Compliance Strategy
- Public Involvement Support
- NEPA and SEPA Scoping
- Methods and Data Report (MDR)
- Support for Alternatives Screening and Development
- Framework for the DEIS

Major Assumptions:

- Portions of the tasks related to NEPA/SEPA scoping and MDRs have been budgeted under Work Order AB.

Definitions:

Agency Sponsors

Agency Sponsors include key project contacts from ODOT, WSDOT, FTA and FHWA, Metro, TriMet, C-TRAN and RTC.

Environmental Board

The Environmental Board consists of the CONSULTANT Environmental Team Manager and key managers at CONSULTANT who will be responsible for ensuring that the company's resources are fully available to the CRC team, and will provide periodic strategic input.

EIS Management Team

The EIS Management Team consists of the Environmental Manager, Deputy Environmental Managers, Environmental Technical Group Leaders, the Document Production Manager and the WSDOT/ODOT Environmental Manager.

Technical Group Leaders

Six Technical Group Leaders cover the following disciplines/project areas: Built Environment, Natural Environment, Cultural Environment, NEPA PI, Regulatory Compliance/Agency Coordination, and Technical Report Management.

Task Leaders

Task Leaders report to Technical Group Leaders, and are assigned in the following areas of technical expertise:

- Air Quality (including air toxics)
- Displacements and Relocation
- Ecosystems (including Aquatics, Plants, Threatened and Endangered Species, and Wildlife)
- Economics
- EMF
- Energy
- Environmental Justice
- Geology, Hydrogeology, Seismic, and Soils
- Hazardous Materials
- Historic, Archaeological, and Cultural Resources (Section 106)
- Land Use
- Neighborhood and Population
- Noise and Vibration
- Parklands
- Public Services
- Section 4(f) and Section 6(f)
- Visual Quality and Aesthetics
- Water Quality and Hydrology
- Wetlands
- Construction Impacts
- Cumulative and Indirect Impacts
- Public and Agency Involvement

The following disciplines will be managed and led by others, and are not included in this task:

- Utilities
- Transit
- Traffic

- Non-vehicular transportation
- Aviation
- Navigable waterways

6.1 Project Management

CONSULTANT will provide overall environmental team direction, scope and budget management, as well as coordination with the prime CONSULTANT, STATEs, and other firms on the CONSULTANT team.

6.1.1 Environmental Oversight and Team Coordination

Manage, participate and or contribute to the following oversight and coordination meetings:

- Up to 61 weekly EIS Management Team meetings at 1 hour per meeting (including preparation and follow-up time). Up to 8 people will attend these meetings
- Up to 30 Environmental Team operations meetings at 1 hour per meeting (including preparation and follow-up time). Up to 5 people will attend these meetings
- Up to 10 EIS team meetings at 2 hours per meeting (including preparation and follow-up time). Up to 14 people will attend these meetings
- Up to 8 Environmental Board meetings at 2 hours per meeting (including preparation and follow-up time). Up to 5 people will attend these meetings
- Up to 30 bi-weekly PDT meetings at 4 hours each; only the Environmental Project Manager will attend these meetings
- Up to 30 bi-weekly CONSULTANT Task Manager meetings at 3 hours each; only the Environmental Project Manager will attend these meetings
- Up to 4 Project Advisory Team meetings at 2 hours each. The CONSULTANT and one other senior CONSULTANT employee will attend these meetings

Provide overall environmental team coordination.

Maintain environmental team staffing and work leveling.

Provide assistance to Project Advisory Team.

Deliverables:

- Up to 61 weekly EIS Management Team meetings
- Up to 30 Environmental Team operations meetings
- Up to 10 EIS team meetings
- Up to 8 Environmental Board meetings
- Up to 30 bi-weekly PDT meetings
- Up to 30 bi-weekly CONSULTANT Task Manager meetings
- Up to 4 meetings assisting Project Advisory Team

6.1.2 Progress Tracking and Reporting

- Prepare monthly updates on schedule and work progress. Summarize, by task, major

activities reflected in the accompanying invoice and areas that require attention.
- Maintain a system to track all changes to the scope of work.
- Monitor the detailed EIS schedule, including progress toward milestones.
- Adjust the work effort, as needed, to meet deadlines. This will include regular communication with the EIS Team, as well as the CRC Environmental Manager.
- Update the schedule monthly. Provide schedule updates to Agency and the EIS Team.

Assumptions:
- Progress reports will follow the format provided by CRC.
- Schedule updates will be provided in Microsoft Project.

Deliverables:
- Monthly (up to 15) progress reports
- Notice of potential scope changes
- Schedule updates

6.1.3 Budget/Financial Management
- Prepare monthly invoices
- Provide internal budget monitoring and review invoices for other CONSULTANT members of the environmental team
- Inform the Prime CONSULTANT in advance of any scope changes that may affect the budget
- Manage change orders affecting the budget

Assumptions:
- Change orders will be promptly documented, negotiated and implemented.

Deliverables:
- Provide monthly invoices and expense documentation per CRC format with back-up

6.2 Agency Coordination and Regulatory Compliance Strategy
CONSULTANT will facilitate coordination efforts with natural resource agencies regarding decisions to be made during this phase of the project. Key points of decision may include the purpose and need statement, the criteria for selecting alternatives, and the range of alternatives. Tasks will include:
- Facilitate the development of a final agreement for resource agency coordination.
- Maintain regular communication with FTA, FHWA, WSDOT, ODOT, resource agencies and the EIS team.
- Organize and help direct monthly meetings with the resource agency representatives.
- Organize and help direct subgroup meetings with selected representatives from resource agencies. Subgroups may include: 4(f)/Section 106, Storm Water, Aquatic Resources, Air Quality/Air Toxics.

- Develop agency concurrence packages on up to 3 major decision points for review and comment, revision and refinement.
- Assure environmental team's work is coordinated with CRC and agencies' efforts.

Participate in regular meetings and coordination with agency sponsors through the Environmental Working Group.

Assumptions:

- Up to 3 environmental staff will attend up to 14 monthly meetings with resource agency representatives at 4 hours per meeting, plus up to an additional 12 hours of preparation and follow up time per meeting.
- Up to 2 environmental staff will attend up to 36 subgroup meetings at 8 hours per meeting (including preparation and follow-up). Different staff technical specialists will be assigned to different subgroups.
- Coordination with resource agencies will largely follow the procedures of SAC and CETAS.
- Up to 2 environmental staff will attend 32 bi-weekly Environmental Working Group meetings at 6 hours per meeting (including preparation and follow-up).

Deliverables:

- Finalize Agency Agreement
- Up to 15 monthly meetings with resource agencies
- Up to 36 subgroup meetings
- Up to 24 Environmental Working Group meetings
- Agency and EIS team contact information
- Agendas and meeting notes for the Agency Partner meetings
- Concurrence packages on up to 3 major decision points
- Other coordination with agencies and CRC

6.3 NEPA Public Involvement Support

CONSULTANT will provide input and guidance on public involvement activities linked to the environmental review processes and requirements under NEPA/SEPA and other environmental regulations.

- Provide input to Communications Team on up to 4 public outreach events related to two rounds of public review during the 15-month period.
  - Round 1 – Develop initial broad range of alternatives and perform initial alternatives screening.
  - Round 2 – Refine alternatives and develop range of alternatives for the DEIS.
- Participate in up to 5 special issues workshops.
- Participate in up to 5 Environmental Justice working group meetings and prepare necessary materials.
- Participate in up to 7 task force meetings.

- Participate in up to 5 community events.
- Participate in up to 4 speakers' bureau events.
- Develop NEPA and environmental-related materials for the project website.
- Contribute NEPA and environmental-related information and materials for newsletters to inform and educate.
- CONSULTANT will provide up to 8 exhibits for public involvement events. All other exhibits will be prepared by others. CONSULTANT will provide environmental information and data for the exhibits.
- CONSULTANT will arrange for a court reporter to attend the public scoping meetings to record those people wishing to make oral comments.

Assumptions:

- Up to 4 environmental staff for each of the public outreach events. One environmental staff to coordinate NEPA activities related to public outreach events.
- 1 environmental staff for each special issues workshop, task force meeting, community event and speaker's bureau.
- Up to 2 environmental staff for each Environmental Justice working group meeting.
- Public involvement and communications will be managed by others. CONSULTANT's role is to assist in strategy and delivery related to NEPA, regulatory requirements and environmental issues.
- The project webpage will be developed, managed and maintained by others.
- The project newsletters will be developed, produced and mailed by others.
- WSDOT will provide any comments received through their webpage pertaining to the environmental effort to CONSULTANT.

Deliverables:

- Attend 4 public outreach meetings, as described above
- Attend 5 special issues workshops, as described above
- Attend 5 Environmental Justice meetings, as described above
- Attend up to 7 task force meetings, as described above
- Attend up to 5 community events, as described above
- Attend up to 4 speakers' bureau events, as described above
- Provide information and materials for project website
- Provide information and materials for project newsletter
- Provide information and materials for public and agency meetings
- Provide monthly updates on the public involvement process to the Environmental Project Manager
- Up to 8 exhibits for public events related to scoping
- Input on other public event exhibits to be prepared by others
- Court reporter transcripts from 4 public meetings
- Coordination with CRC public involvement staff

6.4 NEPA (Tribal) Scoping

CONSULTANT will address the procedural requirements for scoping under NEPA and SEPA and for initial National Historic Preservation Act Section 106 consultant requirements with affected agencies, Indian Tribes, and the public. This task will involve the initial activities needed to merge the NEPA and Section 106 Tribal government's consultation and coordination processes. The scoping process will be used to identify and focus the range of analysis for the DEIS. CONSULTANT will prepare an accurate and well-organized public record of the scoping activities conducted in conjunction with the I-5 Columbia River Crossing EIS.

- Inform the process for soliciting and collecting public comments during the scoping process.
- Assist WSDOT and ODOT with preparation and staffing for tribal scoping meetings, one for each Tribal government.
- Prepare and submit specialized scoping letters to Tribal governments from either WSDOT or ODOT, depending on the agency primarily responsible for coordinating with the Tribal government.

Assumptions:

- The initial public scoping open houses and Agency Scoping meeting (in October 2005) will be conducted as part of Task AB and are therefore not included in this scope of work.
- Participation in other public and agency coordination events and activities is included in other tasks.
- There will be 6 Tribal coordination meetings. WSDOT and ODOT will lead tribal coordination. CONSULTANT will assist WSDOT and ODOT with preparation and staffing. CONSULTANT will provide up to 2 professional staff for each meeting. There will not be court reporters at Tribal coordination meetings.
- Consultation and Other Elements:
  - FTA and FHWA will serve as the "lead" for all formal consultation and informal coordination with Tribal governments. CONSULTANT will assist Agencies in formal consultations. Formal consultation will typically involve communications between Agency representatives and Tribal government regarding identification of Tribal government concerns and issues, and processes for further assessing concerns and resolving issues. Formal consultation correspondence will be issued by WSDOT and/or ODOT. CONSULTANT will consult with WSDOT and ODOT cultural resources specialists prior to CONSULTANT's initiating and following Contactor's informal coordination with Tribal governments. Informal coordination will typically involve communication between technical specialists regarding technical issues.

Deliverables:

- 6 Tribal scoping meetings
- Documentation of all informal and formal Tribal government coordination and consultation

6.5 Prepare Scoping Report

CONSULTANT will prepare a three-phased report summarizing scoping activities, input received, and actions to be taken. The purposes of the report will be to (1) provide the project team with a summarized version of scoping input received so that input can be incorporated, as appropriate, into project development and implementation, and (2) provide to the public and other stakeholders, a summary record of comments received and how those comments will influence project development and implementation. The report will be developed in three phases, each phase corresponding to each of the major public outreach efforts. Activities include:

- Receive public, agency, and Tribal government comments. Comments may come from public meetings, the project team website, the WSDOT contact database, and from the CRC communications team.
- Load comments into a database, and organize comments and concerns according to the elements of the environment in the EIS.
- Summarize and paraphrase the comments into comment "groups" or "themes"
- Prepare and circulate preliminary draft (including summary of scoping activities and summary of comments) for ODOT and WSDOT review.
- Assign responses to appropriate project team members (note: the team will not develop responses to each comment. The team will develop a general response to each comment "group." The intent of the responses will be to summarize how the comments will be incorporated into project development and implementation (e.g., the analysis of impacts, development of alternatives or other project activity).
- Prepare and circulate draft scoping report for review and comment by: WSDOT, ODOT, FTA, FHWA, Metro, TriMet, C-TRAN and RTC.
- Revise preliminary and draft scoping reports and produce final scoping report.
- Provide the final report to the Communications team for posting on the project web site.

Assumptions:

- The Communications team will provide CONSULTANT with a summary of the relevant communications activities conducted during each phase of the scoping process.
- CONSULTANT will manage scoping comments and responses using CRC-provided software.
- Public and agency comments will be gathered through mail, public meetings, email and/or the project team website. The Communications team will provide comments received to CONSULTANT.
- Responses to scoping comments will be prepared by the CONSULTANT team or Agency staff responsible for the given subject matter.
- Information provided by the Tribal governments and determined by them to be sensitive due to the need to maintain cultural integrity and inappropriate for distribution to the general public, will not be included in documents issued for general public access, or in other documents that are accessible to the general public via the Freedom of Information Act (FOIA). CONSULTANT, WSDOT, ODOT, FHWA and FTA will provide sensitive information only to internal staff with a need to know, or to other parties as determined appropriate by the Director of FHWA and/or FTA pursuant to the FOIA.

Deliverables:

- Electronic copy of the preliminary and draft versions of each of three phases of the scoping report
- One hard copy and an electronic copy of the preliminary, draft and final versions of each of the 3 final scoping reports

6.6 Alternatives Screening and Analysis

CONSULTANT will support establishment of screening criteria, coordinate development of components and alternative packages, coordinate alternatives screening, and coordinate alternatives evaluation.

In the alternatives screening and analysis, work under this task also provides for input on environmental issues and provides environmental analysis for the alternatives screening and analysis process.

Assumptions:

- The Initial Screening Report will be compiled and will include: Criteria Development and Description, Alternatives, Evaluation of Alternatives, Findings, Glossary of Terms and Abbreviations, Final List of Criteria, List of Tables and List of Figures.
- The Environmental Team will be responsible for preparing relevant environmental sections of the Initial Screening Report. Remaining sections will be evaluated as described under other work elements in this scope of work.
- The screening analysis will draw from available data, including:
  - Environmental Baseline data
  - The I-5 Transportation and Trade Partnership Strategic Plan
  - Any public and agency comments received to date
  - Input collected through the public and agency scoping process.
- The review and revision process for both phases of the Screening Memoranda will include:
  - Two internal review cycles: Technical Group Leaders/Task Leaders and Quality Control leads will internally review the memoranda and give technical direction to writers.
  - One client review (ODOT and WSDOT): This includes one meeting between Technical Group Leaders and WSDOT/ODOT reviewers to discuss comments and resolutions.
- Any review comments that require additional analysis or data collection may require a scope and budget revision.

6.6.1 Phase 1 – Environmental Alternatives Screening

- CONSULTANT will provide environmental input and analysis to help screen up to 10 alternatives using up to 15 environmental screening measures.

- CONSULTANT will develop Screening Memoranda describing the evaluation of each alternative for each relevant environmental measure.
- Environmental staff members will prepare for and attend up to 5 meetings (averaging up to 5 staff per meeting) related to Alternatives Screening, and will participate in up to 3 workshop-type meetings (up to 6 staff) related to Alternatives Screening.

Deliverables:

- 5 meetings regarding alternatives screening
- 3 workshop style meetings
- Initial Environmental Screening Memoranda.
- 1 client review meeting
- Reviews and revisions
- Responses to comments

6.6.2 Phase 2 – Alternatives Screening

- CONSULTANT will provide environmental input and analysis to help evaluate up to five multi-modal, build alternatives, to support the development of the range of alternatives to carry forward into the DEIS analysis.
- CONSULTANT will develop Screening Memoranda describing the results of evaluation of each alternative for each relevant environmental measure.
- CONSULTANT will help develop the measures to evaluate the alternatives during this phase.
- Environmental staff members will prepare for and attend up to 10 meetings (averaging up to 5 staff per meeting) related to Alternatives Screening, and will participate in up to 3 workshop-type meetings (up to 6 staff) related to Alternatives Screening.

Deliverables:

- 5 meetings regarding alternatives evaluation
- 3 workshop-type meetings regarding alternatives evaluations
- Screening Memoranda.
- Reviews and revisions.
- 1 client review meeting.
- Responses to comments.

6.6.3 Alternatives Screening Report

CONSULTANT will provide necessary text and revisions to support the development of the Alternatives Screening Report.

Assumptions:

- The review and revision process for the Screening Report will include:
  - One client review (ODOT and WSDOT):

- One FTA/FHWA and participating agency review.

Deliverables:

- Reviews and revisions
- Responses to comments

6.7 Draft Environmental Impact Statement Framework

CONSULTANT will develop the DEIS general framework and document outline. The framework will identify key elements of report content, and report design.

- Content: Prepare a high-level outline for the DEIS describing major sections, order of sections, general contents and any associated or supplemental reports or documents (i.e., summary reports).
- Design: Prepare a schematic of DEIS design elements. This schematic will replicate the graphic elements planned for the reader-friendly document. Elements to be articulated in this mock-up will include: layout, paper style, type faces, column styles, sidebars, captions, headers and/or footers, photos and graphics. This mock-up will be no more than 10 pages, but will be of sufficient length to identify the main design elements for the DEIS.

Assumptions:

- There will be 2 rounds of internal review.
- There will be 1 round of STATEs staff review.
- There will be 1 round of review by Agency Sponsors and FTA/FHWA to occur simultaneously. Comments from local jurisdiction will be consolidated on one copy per jurisdiction.
- For each review draft, we have budgeted to provide an electronic copy and 1 reproducible copy of the document.
- Chapters and sections being prepared by STATEs or other CONSULTANTs will be provided to CONSULTANT for formatting and compilation after the CRC Project Manager has judged them to be 95 percent complete. A chapter will not be submitted for local review until each of its sections has been compiled and formatted.
- Final design and content elements for the DEIS may be modified once this task is complete. Modifications to design and content may occur due to the introduction of new alternatives, updated information on project impacts or other factors.

Deliverables:

- Provide 1 reproducible copy and an electronic copy of the outline of the preliminary framework for the DEIS
- Provide 1 reproducible copy and an electronic copy of the draft framework for the DEIS content and design elements

6.8 GIS and Data Management

This task covers GIS and data management work necessary to support all work conducted under task 6.0, Environmental, as well as a GIS and Data Management Plan.

Assumptions:

- Spatial data for the potential alternatives and options to be considered in the Columbia River Crossing EIS will be provided by others in an ESRI compatible format and projected in project coordinate system.
- This task does not include new data collection. Data collection is scoped in other tasks.
- This task will include 10 hours per month for GIS staff from the environmental team to meet and coordinate with GIS and CAD staff from other members of the project team.

Deliverables:

Agency Coordination and Regulatory Compliance Strategy

- Prepare up to 50 map figures and 10 plots for the meetings with resource agency representatives
- Prepare up to 50 map figures for the EWG and subgroup meetings
- Provide access to digital data created and collected during existing conditions/environmental baseline report phase to other entities for creation of additional map figures

Public Involvement Support

- Provide access to data and map figures created during the existing conditions/environmental baseline report phase to other groups for their use.

NEPA/SEPA Scoping

- Provide access to data and map figures created during the existing conditions/environmental baseline report phase to other entities for their use
- Prepare up to 15 map figures for the Scoping Report.

Methods and Data Report

- Provide data sources and collection methods for all spatial data to be used in the MDR
- Prepare up to 5 map figures for inclusion in MDR

Alternatives Screening Analysis and Development

- Prepare up to 20 preliminary and final map figures for alternatives screening.
- Conduct data analysis to support the Phase 1 alternatives screening process.
- Prepare up to 20 preliminary and final map figures for use in the alternatives evaluation.
- Conduct necessary data analysis to support the Phase 2 evaluation process.

GIS and Data Management Plan

- Prepare a data standards document for project team use to assure data are created and maintained in compatible formats and projections.
- GIS and CAD coordination.

6.9 Document Production

The CONSULTANT will provide documentation management, graphics design, and production support activities for the following tasks:

- NEPA Public Involvement Support (Scope Task 6.3)
- Prepare Scoping Report (Scope Task 6.5)
- Alternatives Screening Analysis and Development (Scope Task 6.8)
- Draft Environmental Impact Statement Framework (Scope Task 6.9)
- Quality Assurance/Quality Control (Task 6.10)

6.9.1 Document Production for NEPA Public Involvement Support

Assumption:

Although the webpage and newsletters for public involvement and outreach will be developed, managed and maintained by others, it is assumed that there will need to be assistance from CONSULTANT's Graphics Designer in support of the information and materials specified under the Task 6.3 Deliverables.

Deliverables:

- Provide materials and graphics design assistance on environmental issues for the project newsletter—projected to be 3 project newsletters
- Provide materials and graphics design assistance on environmental issues for the project website—projected to be ongoing
- Review of information and materials for project website
- Review of information and materials for project newsletter
- Maintain hard copy and electronic files of CONSULTANT generated public involvement and outreach materials, and the resources upon which they are based

6.9.2 Document Production for Scoping Report

Edit scoping report documents for grammar, flow and structure to assure adherence to the Quality Control/Quality Assurance Plan.

Compile contributions to the report before and after each review cycle.

Provide graphics support for the report.

Assumptions:

- The scoping report will be produced in three phases, each phase corresponding to one of the three major public outreach efforts.

Deliverables:

- Review of 3 preliminary Scoping Reports
- Review of 3 draft Scoping Reports
- Review of 3 final Scoping Reports

- Maintain hard copy and electronic files of the resource materials upon which the reports are based

6.9.3 Document Production for Alternatives Screening and Development

Edit environmental sections of Screening and Evaluation memoranda for grammar, flow and structure to assure adherence to the Quality Control/Quality Assurance Plan.

Compile environmental team's contributions to the report before and after each review cycle.

Deliverables:

- Review of environmental-related submittals for the Alternatives Screening Report
- Review of environmental-related submittals for the Alternatives Evaluation Report
- Maintain hard copy and electronic files of the resource materials upon which the environmental reports are based

6.9.4 Document Production for DEIS Framework

Edit draft framework for grammar, flow and structure to be in conformance with the Quality Control/Quality Assurance Plan.

Compile contributions to the framework before and after each review cycle.

Provide graphics support for the framework.

Deliverables:

- Review of preliminary framework for the DEIS
- Review of draft framework for the DEIS
- Provide 1 reproducible copy and an electronic copy of the outline of the preliminary framework for the DEIS
- Provide 1 reproducible copy and an electronic copy of the draft framework for the DEIS
- Maintain hard copy and electronic files of the resource materials upon which the report is based

6.10 Quality Assurance/Quality Control

CONSULTANT will develop and implement a quality assurance/quality control (QA/QC) plan and process. This will include developing the plan, overseeing implementation of the plan, and documenting adherence to the plan. A primary component of implementing this plan will be QA/QC review of all documents produced for the client, agencies or the public.

6.10.1 Quality Assurance/Quality Control Plan

Assumptions:

- The QA/QC Plan will be used only for work done in Work Element 6.0 of this scope.

Deliverables:

- Draft QA/QC Plan

- Final QA/QC Plan
- Documentation of QA/QC Plan adherence

6.10.2 Quality Assurance/Quality Control Review

Assumptions:

- This task does not encompass the technical review that will occur by technical staff. That effort is covered in other tasks.

Deliverables:

Agency Coordination and Regulatory Compliance Strategy

- Review of concurrence package

NEPA Public Involvement Support

- Review of information and materials for project website
- Review of information and materials for project newsletter

Prepare Scoping Report

- Review of preliminary, draft and final first Scoping Report
- Review of preliminary, draft and final second Scoping Report
- Review of preliminary, draft and final third Scoping Report

Methods and Data Report

- Review of draft MDR for Participating agency review
- Review of draft MDR for FTA/FHWA review
- Review of final MDR

Alternatives Screening Analysis and Development

- Review of initial screening memoranda
- Review of final submittals for the Alternatives Screening Report

Draft Environmental Impact Statement Framework

- Review of preliminary framework for the Draft Environmental Impact Statement
- Review of draft framework for the Draft Environmental Impact Statement

6.11 Noise, Vibration and Air Quality

CONSULTANT (TW Environmental) will complete the air and noise data collection and analyses for this phase. CONSULTANT (Earth Dynamics) will complete the vibration analysis.

The noise and vibration methodology will generally follow the screening and general assessment analysis methods outlined in the FTA Noise and Vibration Impact Assessment Guidance. The highway noise analysis will use a 2-dimensional contour method to show the general trade-off in the number of potential impacts between alternatives.

6.11.1 Noise Analysis to Support MDRs and Alternatives Analysis

The proposed alternatives will be reviewed and a brief field review of sensitive noise receptors identified during the baseline study. CONSULTANT will prepare a noise section for the

Methods and Data Report, detailing data collection and analysis methods to be used. A general discussion of the range of effects of noise on humans will be prepared based on information contained in FTA, FHWA, and World Health Organization (WHO) documents.

CONSULTANT will measure existing noise levels at up to 10 locations in the primary API. CONSULTANT will evaluate potential noise impacts associated with transit options using the FTA guidance general assessment methods. Potential noise impacts associated with roadway alternatives will be evaluated using a two-dimensional contour screening method. A fixed increase factor will be used to account for potential reflective noise associated with double deck bridge structures. The results of the analysis will provide general areas and numbers of potential impacts, but will not provide accurate estimates at individual receptors. A summary of potential noise effects and number of potential impacts of the alternatives will be prepared for the screening and/or evaluation process.

Assumptions:

- 10 alternatives will be screened in the first round.
- The 10 alternatives will be comprised of 4 basic components – bridge and road widening, light rail, and bus rapid transit.
- The transit and freight rail components will be similar in volume and configuration and only the locations will change between the alternatives.
- 5 alternatives will be screened in the second round.
- Reuse of transit contours in 2nd round of screening.
- Road contours calculated for I-5 and up to 4 major arterials near I-5.

Deliverables:

- Draft and final noise section for Methods and Data Report, following the process described in Section 6.6
- Draft and final noise evaluation for alternatives screening memoranda, following the process described in Section 6.6

6.11.2 Vibration Analysis to Support MDRs and Alternatives Analysis

There is some neighborhood concern about existing vibration levels in the primary API. The proposed alternatives will be reviewed and a brief field review of sensitive vibration receptors identified during the baseline study. CONSULTANT will prepare a vibration section for the Methods and Data Report detailing data collection and analysis methods to be used.

Data collected during the baseline report preparation will be reviewed and up to 10 measurements of existing vibration levels will be performed in the primary API. The FTA guidance document screening methods will be used to calculate the area of potential impact for each of the alternatives. Roadway alternatives will be evaluated qualitatively based on judgment and the vibration data collected. A summary of the area of potential vibration effects for the alternatives will be prepared. A qualitative discussion of the relative vibration effects of the different alternatives will be prepared.

Deliverables:

- Draft and final vibration sections for the Methods and Data Reports, following the process described in Section 6.6
- Draft and final vibration sections for the alternatives screening memoranda, following the process described in Section 6.6

6.11.3 Air Quality Analysis to Support MDRs and Alternatives Analysis

Because air quality is an issue of substantial public concern for the CRC project, we anticipate that a more thorough analysis of emissions will be appropriate than would normally be performed at the alternatives screening phase. Air quality (including air toxics, and deposition of particulate matter and toxic compounds) was identified as a primary issue of concern of potentially affected citizens during the I-5 Transportation and Trade Partnership Project and during the NEPA analysis for the I-5 Delta Park Project. FHWA is in the process of developing an air toxics policy for highway projects. FHWA plans to have the policy available in the October to November 2005 timeframe. A key early issue for success of the air quality task within the larger project context will be to develop a clear understanding of public concerns, a clear understanding of the agency partner analysis policies and to formulate a program that addresses both adequately to achieve overall project goals.

The basic analysis proposed for the alternatives screening is estimation of emissions for fine particulate matter, carbon monoxide, nitrogen oxides, volatile organic compounds, and the subset of 6 primary mobile source air toxics (acetaldehyde, acrolein, formaldehyde, benzene, 1,3-butadiene, diesel particulate, and diesel organic gases). Key to addressing public concerns regarding air quality is to present the results of any analysis work performed in an understandable context.

Two tasks are proposed to support this effort:

- Preparation of an analysis of historic trends in pollutant emissions from different sectors in the Portland-Vancouver area, and
- Development and implementation of a public information support program.

This scope includes a concept for the public information support. The actual program needs to be developed in conjunction with the project Communication activities so that it is tailored to address specific public concerns raised. The initial concept is a series of presentations on the basic science of addressing public health from air pollution. These presentations could include:

- How traffic and emission estimates performed and how effective these tools are for addressing local impacts.
- Basic toxicology—how to determine possible or probable human health effects.
- Current recommendations and policy related to human health associated with air pollution, asthma, and lead – such as guidelines from the Centers for Disease Control and Prevention, Environmental Public Health Section.

The qualifications and perceived bias of the information presenters are likely to be important to community acceptance of the information presented. Because this component of the scope is conceptual, and individual presenters have not been identified, a rough estimate of cost is included for budgeting purposes. These costs could change substantially when a final program is developed.

Assumptions:

- A total of 12 sessions of meetings (this could be 4 speakers at 3 public meetings, or 2 public meetings and a preparation meeting) will require expert subject area speaker participation.
- Speaker preparation will be limited to supplying articles or written material already prepared or requiring a minimum of additional preparation time.
- Project information and graphics will be available and will not require additional preparation under the air quality scope.
- MOBILE 6.2 will be used for vehicle emission estimates.
- If transit or freight rail emission estimates are needed, Environmental Protection Agency data will be used.
- Regional vehicle miles traveled will be supplied to CONSULTANT (TW Environmental) for all alternatives to be analyzed.

Deliverables:

- Draft and final air quality sections of the Methods and Data Reports, following the process described in Section 6.6
- Draft and final air quality sections of the alternatives screening memoranda, following the process described in Section 6.6

6.12 Archaeological Resources

CONSULTANT [Heritage Research (HRA)] will prepare outline, conduct research, and provide narrative and supporting documentation for the archaeological section of the Methods and Data Report. This includes coordination with the rest of the team. The Methods and Data Report will be prepared following the process described in Section 6.7.

As part of the development and screening of alternatives, CONSULTANT will conduct additional research at Fort Vancouver. This may include consultations with NPS archaeologists and a review of previous work conducted by NPS within the APE. Additional research will also be conducted as needed for the remainder of the project area to identify any additional relevant materials for the alternatives analysis. This information will be used to support the alternatives screening.

CONSULTANT will provide information to support the agency and tribal scoping processes, as requested.

Deliverables:

- Draft and final archaeological section of the Methods and Data Report, following the process described in Section 6.6
- Draft and final archaeological section of the alternatives screening memoranda, following the process described in Section 6.6

6.13 Economic Methods and Data Report

CONSULTANT will develop the Economics sections of the Environmental Methods and Data Report (MDR) in order to obtain agreement from relevant agencies on the proposed data collection and analysis methods for Economics. The MDR will include the following sections:

- Purpose
- Relevant laws and regulations
- Analysis area(s)
- Data sources and data collection methods
- Significance thresholds or level of service definitions, including typical thresholds or standards of significance, if appropriate
- Approach for evaluating long-term operational impacts
- Approach for evaluating short-term construction impacts
- Approach for evaluating cumulative and indirect impacts
- Approach for identifying mitigation measures
- References

CONSULTANT will also provide input on the approach and strategy for evaluating cumulative and indirect impacts, to be described in the MDR.

Assumptions:

- MDR drafting includes up to four review cycles

Deliverables:

- Draft Economic section of MDR (incorporated in full MDR document)
- Final Economic section of MDR (incorporated in full MDR document)

6.14 Supplemental Data Collection

This task will cover limited additional data collection to supplement that already collected under Task AB. This task will cover supplemental data collection that may be necessary to support the methods and data reports, or the development and screening of alternatives. This task does not cover extensive new data collection. Level of effort is limited to that allowed by the task budget.

6.15 Supplemental Cultural Data Collection

6.15.1 Historic Resources Supplemental Environmental Analysis

CONSULTANT will coordinate with WSDOT/ODOT and the Cultural Resources Workgroup to refine the data requirements and data collection and analysis process to support the alternatives development and screening activities for the project, and to facilitate later NEPA EIS document preparation.

Data refinement activities may include, but are not necessarily limited to: additional field reconnaissance, refining prior field reconnaissance data, preparing historic resource context document(s), and/or preparing determination of eligibility documentation.

Level of effort for this task is limited to that allowed by the task budget.

Deliverables:

- Potential draft and final refinement to the historic resources section of the MDR, should coordination requirements extend beyond other MDR delivery schedules.
- Additional documentation as determined appropriate in the MDR to support alternative development and alternative screening activities and to facilitate later NEPA EIS document preparation.

6.15.2 Section 4(f)/Section 6(f) Supplemental Environmental Analysis

CONSULTANT will coordinate with WSDOT/ODOT to refine Section 4(f)/Section 6(f) data requirements and the data collection and analysis process.

Data refinement activities may include, but are not necessarily limited to: additional document and field research regarding previously identified resources or resources that might lie outside earlier study areas, additional consultations with officials having jurisdiction, or refined facility mapping activities.

Deliverables:

- Potential draft and final refinement to the Section 4(f)/Section 6(f) section of the MDR, should coordination requirements extend beyond other MDR delivery schedules.
- Additional documentation as determined appropriate in the MDR to support alternative development and alternative screening activities and to facilitate later NEPA EIS document preparation.

7.0 TRANSIT PLANNING & ENGINEERING

The purpose of this task is to advance the Columbia River Crossing multi-modal transit alternatives through Phase 1 and narrow the range of transit alternatives to be presented in the Alternatives Analysis/Draft Environmental Impact Statement (AA/DEIS). Major elements of the task are 1) satisfy the Alternatives Analysis requirements of the FTA, 2) develop and screen transit alternatives (as part of multi-modal packages) down to as few as possible to advance into the DEIS, and 3) provide collaborative technical support to other tasks. The timeframe for these services is approximately 14 months.

To accomplish these elements, the transit planning and engineering task is broken down into 11 subtasks, which are listed below. Significant assumptions and deliverables are listed under each subtask.

7.1 Transit Team Project Management

Manage all individual work elements related to transit planning and engineering, participate and collaborate with other task managers on related work items, and oversee progress reporting.

7.1.1 Transit Team Oversight and Coordination

Manage daily activities of the transit team.

7.1.2 Project Development Team and Progress Reporting

- Participate in PDT meetings and collaborate with other working groups, up to 30 meetings.
- Attend meetings with Federal, City, County, FHWA, FTA, and other officials or consultants as directed by the STATE, up to 24 meetings.
- Prepare Task 7.0 monthly progress reports and provide input into master consultant team progress reports.

7.2 FTA New Starts Requirements

The CONSULTANT, with assistance from C-TRAN, TriMet, METRO, and RTC, will prepare and submit to the project team technical memorandums to satisfy the initial phases of the AA/DEIS process.

7.2.1 FTA New Starts Reports & Technical Memoranda

Work efforts would be centered on the following submittals, some of which are further described in tasks below:

- Start-Up Package
- Detailed Definition of Alternatives

7.2.2 FTA & FHWA Coordination

- FTA/FHWA/ODOT/WSDOT Stewardship Agreement (support)
- Monitor changes in FTA New Start and NEPA rules and procedures, assess impact on this project, and offer strategic advice to consultant team and client.

Assumptions:

- The CONSULTANT will prepare the draft FTA submittals for review and comment. Official submission of the documents to the FTA and FHWA will be made by the DOT(s) or their designate.

7.3 Develop Initial Set of Transit Components

The CONSULTANT, in collaboration with the Transit Working Group and the Design Engineering Working Group, will develop the project's transit component parts, based on the work completed in the I-5 Transportation and Trade Partnership, to be used in the NEPA scoping process.

7.3.1 Data Collection

The CONSULTANT will review available data to determine what, if any, transit data is missing and will propose a data collection plan as appropriate. Execution of the data collection plan is not covered in this scope of work.

7.3.2 Purpose and Need

The CONSULTANT will review previous studies and existing data to define travel markets in the study area. Travel markets and performance deficiencies that lend themselves to a transit solution will be identified.

7.3.3 Transit Component Identification

Considering the results of 7.3.2, the consultant will identify an initial set of transit components which will be put forward for the NEPA scoping process. The set of components will be described in general terms consistent with other components to be screened.

- Develop 2030 No Build Alternative
- Develop 2030 TDM/TSM Alternative
- Develop Project Components, possibly including:
  - HOV/Express Bus
  - Local Bus
  - BRT
  - LRT

Deliverables:

- Technical memorandum on Travel Markets
- Technical memorandum on Purpose and Need
- Technical memorandum containing the descriptions of transit components and maps to go into the NEPA Scoping process.

7.4 Transit Service Planning and Analysis

The CONSULTANT, in collaboration with the Transit Working Group, will assist local transit agencies in developing the service plans and technical information to support the Build and No-Build alternatives.

7.4.1 Transit Operations Analysis for 2005 Existing Conditions and 2030 No Build Alternative

The CONSULTANT, working collaboratively with the Transit Working Group, will analyze 2005 existing transit conditions and 2030 no build alternative transit operations using the Transit Level of Service (LOS) guidance from the *Transit Capacity and Quality of Service Manual* (TCQSM), Second Edition. The analysis will focus on Headways, Hours of Service, Service Coverage, Passenger Loads, Reliability, and Transit/Auto Travel Time Difference.

7.4.2 Service Planning

The CONSULTANT will support service plan development for the alternatives as developed by C-TRAN and TriMet to support travel demand and other analyses for the component and alternative screening. Service plans will include routes, termini, and initial headway assumptions. The operating plans for each alternative surviving the component screening will be described, assembled into multi-modal packages, and defined in a detailed definition of alternatives report meeting FTA guidelines.

7.4.3 Travel Demand Forecasting Support

The CONSULTANT will submit the detailed definition of alternatives report to METRO, who will then code the transit networks and build alternatives for import into VISUM to determine transit and traffic impacts and integration issues. METRO will be responsible for meeting its pre-approved modeling schedule, and is responsible for ensuring the capacity and capability to meet all applicable FTA standards for modeling.

7.4.4 Demand Forecasting Results

When needed, the CONSULTANT will assist METRO in reviewing and documenting results of travel demand forecasting, including SUMMIT results, when appropriate.

7.4.5 Baseline Alternative

A baseline alternative will be selected based on the results of the travel demand forecasting task.

Assumptions:

- There will be a single 2030 No Build alternative.
- Metro/RTC will conduct all travel demand modeling work; the consultant will code hardcopy network plots for use by Metro/RTC.
- Travel demand forecasting will be required for the development of the Travel Markets and Purpose and Need technical memoranda, and will consist of an analysis of the No Build alternative.
- Modeling will be required for the second screening of alternatives.
- METRO will run the VISUM model and SUMMIT, reporting results within 2 weeks of completing the coded networks.
- As necessary, METRO will coordinate with C-TRAN to develop an integrated model that meets the requirements of this study. METRO will coordinate with FTA to confirm the validity of its travel demand model for use in this corridor. METRO or other agencies will carry out any new data collection (such as on-board surveys) that may be required and will correct any issues raised by the FTA in the evaluation of their model and its algorithms.

Deliverables:

- Technical Memorandum on 2005 Existing Conditions and 2030 No Build Alternative Transit Operations
- Service plans for the alternative modeling and screening
- SUMMIT Reports and Post-Processing

7.5 Transit Conceptual Engineering

The CONSULTANT will develop the physical aspects of each alternative in sufficient detail for screening and modeling purposes. All engineering work will be at the conceptual level and will be plan view alignments and profiles, with typical sections detailing specific aspects of the design where appropriate. This subtask will be coordinated closely with the co-located engineering staff of Task 8, Design Engineering. Some specialty engineering elements such as

storm water design, utilities and utility relocations, geotechnical investigations, and seismic design criteria are accounted for in Task 8 and are not duplicated below.

7.5.1 Transit Conceptual Engineering

The CONSULTANT will identify physical features of each alternative including general alignments, termini, general locations for stations, and required capital facilities. Up to 5 interdisciplinary design workshops will be held to assist in defining the alternatives, including those dedicated to a specific mode or alignment.

- Preliminary quantities for major elements of the project will be determined and an opinion of cost will be developed, based on the Standard Item Table, Bid Tabulations, R.S. Means cost and productions rate standards, WSDOT bridge square-yard costs, and other representative data as appropriate.
- Transit conceptual engineering will include such attributes as major structures, transit travel times (including inputs from the Transit Agencies' Operations – such as operating speed, number of stations, park and ride lots) and constructability & staging.

7.5.2 Capital Cost Estimates

Capital cost estimates will be developed based on plan and profile drawings, typical sections and quantity takeoffs. Alignments will be divided into segments with like conditions, and costs additive on segment by segment basis. Cost estimates will be developed using FTA's standardized system of accounts.

7.5.3 Operating and Maintenance Cost Estimates

An operating and maintenance cost model, a synthesis of both C-TRAN and TriMet existing cost allocation models, will be developed based on direct inputs from C-TRAN and TriMet. As operating and maintenance costs will vary depending on the owner/operator of the service, the O&M cost model will flow from decisions made on institutional matters.

7.5.4 CVEP Participation

Upon direction of the STATE, the CONSULTANT will participate in one Cost Estimate Validation Process (CEVP) session to be held in the CRC Project Office. Conceptual Cost Estimates, Risk Registers and Schedule Flow Charts (up to 15 copies each) will be prepared for the Build Alternatives in a format acceptable to the STATE. A final CEVP Report will be prepared by the STATE and reviewed by the consultant prior to issuance.

Deliverables:

- Plan and profile drawings for components considered in the initial set of transit components and those included in the alternative screening
- Capital, operating, and maintenance cost estimates for each alternative
- Participation in one CVEP workshop
- Detailed Definition of Alternatives Report. The CONSULTANT will prepare a Detailed Definition of Alternatives Report describing the alternatives to be evaluated. The report will describe the operating plans and physical features of each alternative as prescribed by FTA

- Technical Methods Memorandum. The consultant will develop a memorandum describing the technical methods to be applied. The memo will cover such topics as engineering and capital costing.

7.6 Component Screening

Using the evaluation methodology developed as part of Task 7.3.2, the consultant, in collaboration with the Transit Working Group, will screen the initial set of transit project components down to approximately five multi-modal Build alternatives for further refinement. Up to three interdisciplinary design workshops may be held to conduct the screening exercise.

Deliverables:

- Draft screening memorandum covering evaluation criteria, descriptions of components considered, evaluation of components, description of components eliminated from further consideration, and components advanced into the next level of screening.

7.7 Alternative Screening

The CONSULTANT, in collaboration with the Transit Working Group, will screen the refined set of five multi-modal alternatives down to approximately one to three transit mode and alignment alternatives to advance into the DEIS.

Deliverables:

- Two chapters of a reader-friendly Alternatives Analysis report summarizing evaluation criteria, descriptions of alternatives considered, evaluation of alternatives, description of alternatives eliminated from further consideration, and alternatives advanced into the DEIS.

7.8 Project Team Support

The CONSULTANT will support other task managers and groups to develop joint CRC project deliverables. The consultant will also provide technical and meeting support to the Communications Team and the Financial Structures Team to assist at major project milestones.

7.8.1 Technical Support

The CONSULTANT will provide technical, graphical, environmental, and transportation planning support to other task managers and groups. Up to 24 interdisciplinary team meetings will be supported.

- Engineering Support
- Environmental Support
- Transportation Planning Support

7.8.2 Communications Team Support

The CONSULTANT will provide technical, engineering and graphical support to the Communications Team. Up to four public events will be supported.

7.8.3 Transit Working Group Oversight and Coordination

Coordinate and provide staff support to the Transit Working Group, up to 28 meetings.

7.8.4 Modeling Working Group Support

Coordinate and provide staff support to the Modeling Working Group, up to 24 meetings.

7.8.5 Financial and Institutional Working Group Support

Coordinate and provide staff support to the Financial and Institutional Working Group, up to eight meetings.

- Determine conceptual transit operating responsibility/agency.
- Support a policy and legislative determination for the development and operations of CRC transit elements.
- Determine transit fare structure, payment methods, and operating cost recovery target rate policies.
- Forecast annualized project fare revenues to the year 2030 from model results.

7.9 Special Technical Studies

The CONSULTANT will undertake special technical studies to better define and refine transit alternatives. The special technical studies will support the transit engineering subtask as listed above.

7.9.1 Station Area Planning

The CONSULTANT will undertake two (2) station area planning studies, which will be coordinated with C-TRAN, TriMet, RTC, METRO, the Cities of Vancouver and Portland and the PDT, to document existing and planned land uses and transportation opportunities and impacts within ¼ mile of potential station locations. Three (3) concept drawings or renderings may be made at two (2) potential station locations.

7.9.2 Capital Facilities Planning

The CONSULTANT will undertake capital facilities planning and/or engineering studies to support 2 alternatives, including high capacity transit alternatives. Such capital facilities may include park-and-rides, maintenance facilities, and other non-corridor infrastructure as appropriate and will be developed to a conceptual level.

- Capital Facilities and Rolling Stock
- General Facility Locations
- Major Structures

7.9.3 Institutional Relationships Support

The CONSULTANT will offer support to local transit agencies to help them consider options for ownership and operation of any new transit services in the study area. This may include administrative support to a task force of local operators, meeting facilitation, development of

case studies of other multi-state arrangements for transit, and preparation of agreements and statutory language.

Deliverables:

- Technical memorandums (if required) covering the above topics

7.10 Quality Control

The CONSULTANT will develop a QA/QC procedure for both document and plan review that will be followed to provide quality control for all deliverables submitted under Task 7.

- Implementation Strategy Team Reviews
- Capital and Operating Cost Reviews
- FTA Submittal Reviews

Deliverables:

- QA/QC Procedures

7.11 Graphics

The CONSULTANT will develop graphics to detail potential transit alternatives.

- Maps, Plan View (20)
- Renderings of Potential Station Areas (6)

8.0 HIGHWAY PLANNING AND ENGINEERING

The purpose of this work element is to complete the highway planning/engineering tasks through Phase 1 as described in the Project Background under this SOW. Highway work elements will satisfy the requirements of the FHWA, FTA, and WSDOT/ODOT design guidelines or recognize when deviations/exceptions are required.

Specific tasks for completion of the highway planning /engineering are detailed below:

8.1 Design Team Management/Coordination

The CONSULTANT will manage all individual work elements related to highway planning and engineering, participate and collaborate/coordinate with other task managers on related work items, and oversee technical, schedule and progress reporting.

8.1.1 Highway Team Project Management

The CONSULTANT will manage the daily activities of the Highway team and provide oversight of all activities related to Task 8.0. This will include all coordination with the other Task Managers and other Working Groups. Also, all necessary project activity, budgetary and schedule assessment and reporting will be accomplished.

8.1.2 Design Team Meetings

Project Team Coordination meetings will be held weekly at the CRC Project Office for approximately one hour each. Upcoming project activities, review of the technical activities

under development, and scheduling issues will be discussed. Unresolved issues will be discussed, and if necessary, elevated to the CRC Project Management Team meeting for resolution. It is anticipated that there will be 65 Coordination Meetings and will involve eight 8 CONSULTANT Team staff persons (on average).

8.1.3 Project Development Team Meeting Attendance

Project Development Team meetings with the STATE will be held on a bi-weekly basis to discuss unresolved project issues and provide strategic guidance. It is assumed that there will be 30 bi-weekly meetings and will include in attendance two staff persons (on average) from the CONSULTANT at each meeting. It is assumed that meetings will be held at the CRC Project Office for approximately two hours each.

8.1.4 Other Agency/Stakeholders Meetings

The CONSULTANT will meet with third parties such as Federal, City, County officials, FHWA, FTA, and other consultants as directed by the STATE. Up to 30 meetings, three hours long, for up to four CONSULTANT staff persons. Each meeting will also require four hours of preparation time and will generally be held at the CRC Project Office.

8.1.5 Working Group Meetings

Working Group meetings with the STATE and other partner agencies will be held on a bi-weekly basis to discuss design project issues and provide consensus design decisions. It is assumed that there will be 30 regularly scheduled meetings and will include in attendance six staff persons (on average) from the CONSULTANT at each meeting. It is assumed that meetings will be held at the CRC Project Office for approximately two hours each.

Deliverables:

- Monthly Progress Reports
- Meeting notes for Working Group Meetings

8.2 Design Criteria

The CONSULTANT will determine the appropriate WSDOT/ODOT, AASHTO and local jurisdiction design criteria which will form the basis for engineering design. For the design of structures or facilities not directly referred to in these manuals, the CONSULTANT will propose other relevant design criteria and coordinate them with the appropriate jurisdictions.

Roadway, structural, and traffic design and performance criteria will be developed at a Conceptual Engineering level. Design criteria will be consistent with applicable AASHTO and WSDOT/ODOT standards and guidelines. The criteria will consist of the currently adopted:

- Design codes
- Design methods
- Design standards
- Design loads
- Navigational
- Freight

- Aviation Clearances

Where conflicts exist between criteria, the CONSULTANT will use its professional judgment to resolve the differences. Due to the size, importance and uniqueness of the major structure(s) on this project, a special seismic design criteria study will be conducted to determine the applicability of WSDOT/ODOT's current seismic design criteria (see Task 8.9.2).

It is assumed that this work furthers that of Task AB and finalizes the design standards through consensus.

Deliverables:

- Draft and Final Design Criteria Memorandum (15 copies) each

8.3 Conceptual Alternative Plan Screening

This item includes the developing, screening and conceptual design of up to 4 build alternatives so as to provide highway and structure conceptual designs adequate to support the overall EIS analysis and specifically the Alternatives Analysis Section. It is assumed that the project area will extend from approximately the north side of Victory Boulevard in Oregon to and including the SR-500 interchange in Washington.

8.3.1 Component Screening

The CONSULTANT will define, evaluate and assess a wide range of engineering related transportation components generated from both the recommendations in the I-5 Transportation and Trade Partnership *Final Strategic Plan* or from additional ideas suggested by the public, affected agencies, and the CRC project partners during the NEPA scoping.

The CONSULTANT will specifically focus on those components that fall within the following broad transportation related categories:

- River Crossing
- Roadways North
- Roadways South
- Freight

A two-step process (A and B) will be employed to each component within the above categories to successively narrow the number of possible solutions. Components to consider include, but are not limited to:

- High or Low level crossing
- Single deck or double deck
- Upstream or downstream (or both) crossing locations
- Seismic Vulnerability
- Interchange configurations
- Adherence to Design Standards

Step A is intended as a pass/fail process where transportation components are screened against questions derived from the *Problem Definition.* Engineering components that pass the Step A process will be further evaluated against Step B criteria developed to reflect values identified in the project *Vision and Values Statement.* All ideas submitted during NEPA scoping will be considered and screened against the criteria using data drawn from mostly previous studies.

Deliverables:

- Draft and Final Engineering Screening Technical Memorandum which will include engineering conceptual sketches, designs and or written evaluations that support the overall Component screening effort. (15 copies each)

8.3.2 Alternative Screening

The CONSULTANT will prepare 1"= 100' conceptual plans and profiles for each build alternative. Up to 8 plan and profile drawing sheets at 22" x 34" are assumed to be required for each alternative. As appropriate, roll plots may be used in lieu of plan sheets.

Details to be shown include, but are not limited to, the proposed profile grade line with stationing; right-of-way and easement limits; cut and fill side slope limits; lanes, median and shoulders; connections and connection layouts; major drainage facilities; potential retaining wall locations; and bridge structures. Typical sections will be developed at key locations (generally up to eight for each alternative) to an appropriate scale to show the lane configuration, shoulder widths, pavement details, cross slopes, bike lanes, sidewalk widths, side-slope details, retaining walls, and proposed right-of-way widths. Details will also be developed for key connections. Key connections for each alternative consist of the northern termini, the southern termini, and the following Interchanges: Fourth Plain Boulevard, Mill Plain Boulevard, Downtown Vancouver, SR-14, Hayden Island, Delta Park, and Interstate Avenue. It is assumed that no more than three connection variations will be developed for each connection point in each alternative.

Construction phasing will be examined for each of the build alternatives. Accommodation of traffic during construction and identification of fatal flaws in the maintenance of traffic concepts will be specifically addressed. Detailed traffic detour plans are assumed not to be included in this phase of work.

A design narrative will accompany each alternative. Any variations in standards will be documented in the design narrative with justification. The narrative will also document design issues, recommendations for structures and retaining walls, and areas with need for additional study.

The CONSULTANT will prepare 1"= 50" conceptual structural plans and profiles for each build alternative structure. Up to 28 drawing sheets at 22" x 34" are assumed to be required for each alternative. As appropriate, roll plots may be used in lieu of plan sheets. Plan and profiles are assumed to be needed for 3 overpasses at Victory Boulevard, 1 overpass at the NB off-ramp to Marine Drive, 2 Marine Drive overpasses, 2 overpasses at the bike pedestrian trail at the Marine Drive on/off ramps, the Oregon Slough crossing, 3 for the Columbia River Crossing, the BNRR overpass, the Washington Street overpass, 5 overpass structures for the ramps to and from SR-14, the proposed 7th Street pedestrian overpass, the Evergreen Boulevard overpass, 3 overpasses at Mill Plain Boulevard, 2 at McLoughlin Boulevard, the Fourth Plain Boulevard overpass, the 29th Street overpass, and the 33rd Street overpass.

The CONSULTANT will determine the conceptual structural configurations and layout of the various facilities. These facilities will include, interchange aerial structures, retained cut sections, retained fill sections, and the major Columbia River Crossing. Structural configurations will be developed to accommodate known physical constraints and geological conditions. Connection layouts will also be developed for key connections along I-5 as noted in 8.3.1.

Structural analysis will be performed to determine the approximate size of major components of the River Crossing, interchange and retaining wall structures. These analyses will incorporate initial soil design parameters based on geotechnical borings and existing site specific soils data.

Ground settlements and lateral soil movements will be estimated for anticipated foundations based on generalized subsurface conditions along the alignment. The potential impacts of the ground movements on adjacent existing structures and facilities will be also be evaluated if necessary.

The construction phasing for structures will be coordinated with the overall construction phasing effort in Item 8.9. This will include initial construction phasing layouts of the structural elements.

Deliverables:

- Draft and Final Conceptual Structures Design Plans (75 copies) each
- Draft and Final Conceptual Highway Design Plans (75 copies) each

8.3.3 No Build

The No Build alternative will be to continue to operate, repair, and maintain the existing I-5 facility including the Columbia River Crossing Bridge. The No Build alternative will include a description of the existing I-5, traffic safety deviations, maintenance requirements, pavement conditions, seismic vulnerabilities anticipated remaining service life of the Crossing, and maintenance and repair requirements to meet the remaining service life. Conceptual Cost Estimates for maintenance, repair, and operation are included in Item 8.4.

Deliverables:

- Draft and Final No Action Alternative Memorandum (15 copies) each

8.3.4 Crossing Aesthetics Assessment

The CONSULTANT will prepare architectural and engineering services to address the aesthetics of the Columbia River Crossing. Consideration will be given to the setting of the project both in its relationship to the community and the natural surroundings.

Baseline design information and aesthetic criteria will be established. Design Charettes will be conducted for the CRC team and the public. Concepts proposed will be screened and evaluated. Recommendations will be made for three concepts of each of the four alternatives to be developed further. Renderings of these concepts will be developed for the alternatives analysis.

Participation in public meetings will be held to present the architectural concepts and incorporate public comment to the designs.

Columbia River Crossing

Establish Baseline Design Information - The first task will be to establish critical design criteria and then develop basic structural concepts for the crossing (for each alternative). This will give the team some baseline information from which to develop or consider structure shapes, pier shapes and configurations, etc., which is very important for a structure of this scale.

Team Design Charette – Conduct a design charette within the project team.

Establish Aesthetic Criteria – this would include consideration of impacts to the skyline, incorporation of local history or culture, iconic appeal, user experience, etc.

Concept Development - This is an opportunity for ideas to be developed without criticism. Follow-up to the charette is to evaluate the concepts proposed for further development. Follow-up includes a basic structural evaluation for feasibility and for functionality. This activity will take about two days plus follow-up.

Public Design Charette – Conduct a design charette for the public. This would be similar to the TDC with the exception that the function of the design team in this setting is to work with / facilitate the public involvement in the process. This could be done at the Public Advisory Committee level instead of the General Public.

Deliverables:

- Draft and Final Bridge Aesthetics Technical Memorandum (15 copies) each.
- Hand-drawn sketches of concepts. Summary report and recommendations for concepts to be further developed. Developed hand-drawn renderings, plan and elevation, and 3D computer model (for renderings) of concepts recommended for further development.

8.3.5 Landside Aesthetics Assessment

The CONSULTANT will develop landside architectural elements in coordination with the crossing components.

Annotated Corridor Plans

Annotated plans of the areas that are likely to be directly affected by bridge, freeway, or transit work or within 200 feet of the project disturbance area will be prepared. These plans will be at a scale consistent with the work of other team members' drawings.

They will include existing features such as:

- freeway alignment, limits and access ramps;
- freeway and railroad bridges and associated structures;
- river banks, harbor line and navigable channels;
- streets, sidewalks and trails;
- parks, open spaces and trees;
- buildings and their main entrances;
- main utility alignments;
- special natural and manmade features.

The CONSULTANT will review drafts of the *Visual Quality and Aesthetics* analysis, and supplement the maps as necessary to accommodate noted item; identify with team members the probable footprints and areas of impact during construction of each bridge alternative under consideration; and identify how many sets of overlay plans are needed to address the universe of bridge and approach options under consideration.

For each set of bridge and approach options, the CONSULTANT will prepare overlays to the annotated plans showing improvements anticipated by the City of Portland and City of Vancouver and others in published plans and approved project proposals. To assure accuracy and completeness of the information shown, the CONSULTANT will review the base plans and overlays with City of Portland and City of Vancouver staff.

Apparent points of conflict – such as restricted access, site encroachment, obstructed visibility etc. – for each set of bridge and approach options will be identified including a suggested means of addressing them.

Architectural Guidelines and Standards

The CONSULTANT will prepare Architectural Guidelines and Standards based on a review of available recent architectural guidelines and standards employed by WSDOT and ODOT. Work will include meeting with WSDOT and ODOT representatives to discuss compatibility of established architectural guidelines and standards, additional items to be addressed, and other changes and updates to be made. The CONSULTANT will prepare a draft combined set of architectural guidelines and standards for review by the CRC and STATEs. Illustrations will be used wherever useful.

Design Guidelines and Evaluation Criteria

The CONSULTANT will prepare design guidelines and evaluation criteria for implementation by the CRC team in the development of alternatives. A comprehensive set of issues relating to architectural treatments will be addressed in evaluating design criteria.

Landscape Elements

The CONSULTANT will identify conspicuous views from the river crossing and approaches, and towards them. These viewsheds will be annotated on the corridor plans. Opportunities within these viewsheds will be identified for specific landscape improvement projects. The CONSULTANT will prepare an initial list of candidate sites, approximate sizes, and range of design opportunities applicable to each.

The CONSULTANT will develop up to 5 prototypical designs that may include site specific treatments that address functions, performance expectations, typical dimensions, preferred orientation and access if applicable. Order of magnitude cost estimates will be prepared for use in developing alternative cost estimates.

The CONSULTANT will coordinate with and participate in design workshops for roadway, bridge, and transit for items relating to architectural elements.

Assumptions:

- Base maps between Columbia Boulevard in Portland and 33rd Street in Vancouver will be provided for developing the annotated plans.
- Visual Quality and Aesthetics analysis will be prepared as described in Work Element 6.

- Work products will be developed to a level that can be used for public outreach events. Up to eight presentation boards will be prepared for use at public events.
- Level of effort will be constrained to the budgeted hours for work under this task.

Deliverables:

- Annotated plans showing architectural elements
- Architectural Guidelines and Standards Technical Memorandum (draft and final)
- Design Guidelines and Evaluation Criteria in draft form to support development of designs
- Development of prototypical design concepts with conceptual level cost estimates

8.4 Conceptual Cost Estimates

8.4.1 Alternative Cost Estimates

Conceptual estimates of cost will be developed in Microsoft Excel to support each of the 5 build alternatives and the No Action, alternative. The opinions of cost will include construction, operation and maintenance, and long-term preservation costs.

Preliminary quantities for major elements of the project will be determined and an opinion of cost will be developed, based on the Standard Item Table, Bid Tabulations, R.S. Means cost and productions rate standards, STATE bridge square-yard costs, and other representative data as appropriate. For budgeting purposes, the level of effort presented for evaluation of the minor and major consideration alternatives will be considered conceptual and sufficient to support the EIS.

Deliverables:

- Draft and Final Conceptual Cost Estimate Memorandum (15 copies) each

8.4.2 CEVP Participation

Upon direction of the STATE, the CONSULTANT will participate in 1 Cost Estimate Validation Process (CEVP).session to be held in the Portland/Vancouver Metro area.

The CONSULTANT will provide up to 8 staff for 3 weeks to support and participate in the CEVP Review. CONSULTANT team members will work with the CEVP team assembled by the STATE.

Conceptual Cost Estimates, Risk Registers and Schedule Flow Charts (up to 15 copies each) will be prepared for 5 Build Alternatives in a format acceptable to the STATE. A final CEVP Report will be prepared by the STATE and reviewed by the CONSULTANT prior to issuance.

Deliverables:

- Conceptual Cost Estimates, Risk Registers and Project Schedule Flowcharts (15 copies) each

8.5 Conceptual Storm Water Design

During the Conceptual Engineering phase, the CONSULTANT will be responsible for the evaluation of impacts to existing storm drainage systems, development of storm drainage systems for the various conceptual alternatives as defined in Item 8.3, and preparation of text for inclusion in the project's overall EIS.

It is anticipated that some storm drainage elements (such as detention ponds) will need to be located outside of the project limits. Potential areas to be considered by the CONSULTANT will be selected in consultation with the STATE and the Cities of Vancouver and Portland.

This task does not include storm water facilities that are not directly related to highway drainage except where those facilities are being considered as a point of discharge for highway drainage. Non- highway drainage storm sewers are covered under Task 8.6.

8.5.1 Records Search for Existing Storm Water Systems

Description:

The CONSULTANT will review the storm water information provided on As-Builts supplied by the STATE and other agencies and conduct a field review(s) of the existing storm water facilities within the project limits. If necessary, the field review will be extended beyond the project limits to include potential locations for off-site facilities such as storm water detention ponds.

The CONSULTANT will make an initial assessment of the completeness and adequacy of storm water information and document in a memorandum any apparent discrepancies or missing information identified in the field.

The CONSULTANT will arrange meetings with each agency with storm water facilities in the project area to obtain information that may not have been recorded on the As-Builts. The meetings will also provide an opportunity to resolve any apparent conflicts between what is shown on the As-Builts and what was observed during the field visit(s). It may be necessary to conduct additional field visit(s) with City staff to resolve apparent conflicts that cannot be resolved during the meetings.

Photographs will be taken, as appropriate, by the CONSULTANT during field trips. These photographs will be compiled into a photo record file.

The CONSULTANT will interview each agency with storm water systems in the project area for the following information: design criteria, information on abandoned facilities, future capital improvement plans for up to the next five-years or the time limits of currently approved capital improvement plans, details of policy on rerouting of the storm water system, estimated cost for proposed realignment, and any special considerations for phasing temporary construction service. The meetings with the Cities of Vancouver and Portland will also include identifying storm water systems in the vicinity of the project area that may have surplus capacity.

The CONSULTANT will document storm water design requirements for WSDOT, ODOT, Washington State Department of Ecology, Oregon Department of Environmental Quality, and the Cities of Vancouver and Portland. Where feasible, a single set of design parameters will be developed that encompasses the requirements of all the above agencies. Differences will be highlighted in the Technical Memorandum discussed below.

The CONSULTANT will prepare markup drawings on 1"=100' base map of existing storm water systems within the proposed alignment corridors based on As-Builts and owner record drawings for storm water systems that are not shown.

The CONSULTANT will draft existing storm water system markup drawings on 1"=100' plan and profile from the markup drawings.

A Technical Memorandum with attached appendices and tabloid-size plans will be prepared to document the search and discovery of existing storm water systems and drainage design criteria within the build-alternatives' corridor.

Assumptions:

- WSDOT, ODOT and the Cities of Vancouver and Portland are the only agencies with storm water facilities within and in the vicinity of the project area.
- Up to 8 site visits, each attended by up to 2 CONSULTANT staff.
- Up to 3 formal interviews with storm water system owners, each attended by up to 2 CONSULTANT staff.
- The CONSULTANT will assure that its staff uses appropriate personal protective equipment when conducting field visits. WSDOT and/or ODOT will provide all other measures necessary to provide for the safety of CONSULTANT staff working in or near roads including, but not limited to, vehicles with hazard beacons, signs and flaggers, trucks with crash cushions, shadow vehicles and barrier vehicles.
- Up to 12 plan and profile drawing sheets will be required.

Deliverables:

- Memoranda prepared during the course of task execution (5 copies each)
- Notes of meetings with storm water utility owners (5 copies each)
- Notes of site visits with selected photographs (5 copies each)
- Draft and Final Existing Storm water Memorandum (15 copies each)

8.5.2 Storm water Concept Technical Memorandum

Description:

A Storm water Concept Technical Memorandum will be prepared by the CONSULTANT and will utilize procedures described in WSDOT's *Hydraulics Manual* and *Highway Runoff Manual* and ODOT's *Hydraulics Manual* and *Highway Design Manual*. The technical memorandum's purpose is to provide the necessary information to perform environmental impact analysis and determine permitting requirements the 4 build alternatives being considered.

The collection of storm water runoff from road surfaces and surrounding project area is expected to comprise ditches, catch basins and pipe collectors and, as such, be relatively straightforward. The treatment and discharge of the storm water will likely be more challenging due to the location of the project within a highly developed urban environment. For example, there are expected to be very limited locations for the size of detention facilities anticipated for this project.

The CONSULTANT will initially develop a preliminary list of options for treating and discharging storm water runoff, including discharge points and potential off-site locations for facilities. To meet discharge requirements, these options may include structural solutions such as the use of storm water ponds or vaults for detention, or discharge into existing storm water systems, or a combination of both. It may also include non-structural solutions such as contributing to a regional storm water system that will provide a similar level of flow attenuation. Developing these options will require discussions with both DOTs, both Cities and, possibly, state environmental agencies.

The work includes the following for each alternative:

- Discuss existing conveyance systems (ditches, culverts, pipes) including plans and profiles.
- Perform preliminary hydraulic analysis for retention, detention, and storm water quality treatment.
- Identify major drainage basins.
- Identify existing storm water systems that need to be replaced or relocated.
- Provide approximate locations and sizes of Detention Facilities.
- Discuss the proposed conveyance system including an evaluation of potential impacts of the proposed system on adjacent parcel(s).
- Identify concept-level Best Management Practices for storm water quality treatment.

Developing storm water options will be an iterative process involving CONSULTANT staff working on bridge, highway, storm water and utility elements as well as WSDOT, ODOT, and the Cities of Vancouver and Portland. This approach is essential for developing robust approaches to storm water management that address key requirements and are acceptable to key government stakeholders.

Assumptions:

- Up to 8 formal meetings will be held jointly with WSDOT, ODOT, and the Cities of Vancouver and Portland. The meetings will be attended by up to 2 CONSULTANT staff.
- Up to 4 formal site visits will be held to review options in the field, each attended by up to 3 CONSULTANT staff.
- Preliminary runoff modeling will be performed using the Western Washington Hydrology Model developed by Washington State Department of Ecology.
- Mapping is adequate for the preliminary layout of storm water facilities that might be required outside of the project area.
- Existing storm water systems that may be considered as discharge points do not need to be modeled.
- The sizing of individual storm water pipes and manholes will not be required. Preliminary sizing will only be developed for treatment and detention/retention facilities.
- Temporary erosion and sediment control (TESC) is not a part of this task.

Deliverables:

- Memoranda prepared during the course of task execution (5 copies each).
- Notes of meetings with storm water utility owners (5 copies each).

- Notes of site visits with selected photographs (5 copies each).
- Draft and Final Storm water Concept Memorandum (15 copies each).

8.6 Conceptual Utilities Design

During the Conceptual Engineering phase, the CONSULTANT will be responsible for the evaluation of impacts to existing utilities (relocation, replacement, etc.), development of utility systems on the bridge and within the road prism for the various conceptual alternatives as defined in Item 8.3, and preparation of text for inclusion in the project's EIS.

The utilities anticipated within the project limits are:

Power	Water
Cable	Sanitary Sewer
Telephone	Storm Sewer
Fiber Optics	Natural Gas

It is recognized that the limits for obtaining utility information will extend beyond the project limits. For example, the limits should include any proposed storm water facilities that could be located outside the project area. The utility limits will be decided in consultation with the STATE.

Note that "storm sewers" does not include facilities required for existing highway drainage. Those elements are covered under Task 8.5.

8.6.1 Records Search for Existing Utilities

Description:

The CONSULTANT will review the utility information provided on As-Builts provided by the STATE, and conduct an initial field review of the existing utilities within the project limits. The field review will comprise a comparison between what is shown on the maps and visual observations of surface features such as manhole and vault covers. If necessary, the field investigation will extend beyond the project limits where this is necessary to confirm the general location and direction of utilities. The CONSULTANT will make an assessment of the completeness and adequacy of utility information on As-Builts provided by the STATE, and document in a memorandum any discrepancies identified during the field review.

The CONSULTANT, with direction/assistance from CRC, will initially contact each utility owner on record with the City of Portland and Vancouver by letter to determine whether it has facilities in or near the project area. Any owner that does not respond to the letter will be contacted by phone to determine whether or not it does have facilities in the vicinity of the project. The CONSULTANT will also research projects that have been recently completed in the vicinity of the project and, if appropriate, request utility information that may have been gathered and shown on drawings. This data will be compared with the As-Builts and discrepancies noted. Any discrepancies will be resolved where possible through field visits and, as noted below, discussions with the affected utility owner(s).

Photographs will be taken, as appropriate, by the CONSULTANT during field visits.

The CONSULTANT will meet and interview each utility owner that has indicated that it has facilities in or near the project area for the following information:

- missing or conflicting information resolution;
- operating or franchise agreements;
- construction record drawings and the expected accuracy and/or reliability of such drawings;
- age and condition of the facilities;
- information on utility materials and criticality of the service;
- design criteria including such data as working pressures;
- information on abandoned utilities;
- future capital improvement plans for utilities for up to the next five-years or the time limits of currently approved capital improvement plans;
- details of policy on rerouting of the utility;
- naming conventions for utility components; and
- Any special considerations for phasing temporary construction service.

Where conflicting information cannot be resolved in the meeting(s), the CONSULTANT will coordinate site visits with the utility owners to verify information in the field. These field visits may require manholes and vaults to be physically inspected.

The purpose of the above tasks is to provide the information required to allow the CONSULTANT to define all known utilities in and near the project area both vertically and horizontally.

The CONSULTANT will prepare markup drawings on 1"=100' base map of existing utilities within the proposed alignment corridors based on As-Builts and any owner-provided record drawings for utilities.

The CONSULTANT will draft existing utility drawings on 1"=100' plan and profile from the markup drawings. Up to 12 plan and profile drawing sheets are assumed to be required. Multiple sets showing different utilities may be required for clarity, typical for all submittals.

A Technical Memorandum with attached appendices and tabloid-size plans will be prepared to document the search and discovery of existing utilities within the build-alternatives' corridor. The plans will show existing utilities and, where applicable, proposed future improvements proposed by utility owners.

Assumptions:

- The utility limits will be approximately 500 feet outside the project limits.
- Up to 12 existing utilities as listed in the above will be affected by the project and may require relocating or replacing.
- Up to 6 formal site visits to validate the As-Builts, each attended by up to 2 CONSULTANT staff.

- Up to 2 formal interviews for each utility owner attended by up to 2 CONSULTANT staff.
- Up to 3 formal site visits to resolve conflicts, each attended by up to 3 CONSULTANT staff.
- The CONSULTANT will assure that its staff uses appropriate personal protective equipment when conducting field visits. WSDOT and/or ODOT will provide all other measures necessary to provide for the safety of CONSULTANT staff working in or near roads including, but not limited to, vehicles with hazard beacons, signs and flaggers, trucks with crash cushions, shadow vehicles and barrier vehicles.

Deliverables:

- Memoranda prepared during the course of task execution (5 copies each)
- Notes of meetings with utility owners (5 copies each)
- Draft and Final Existing Utilities Memorandum (15 copies each)

8.6.2 Utilities Relocation Technical Memorandum

Description:

A Utilities Relocation Technical Memorandum will be prepared by the CONSULTANT. The technical memorandum's purpose is to provide the necessary information to perform environmental impact analysis and determine permitting requirements the four (4) build alternatives being considered.

The CONSULTANT will develop a general approach to utility relocation in consultation with the STATE. The approach will encompass utilities affected at either end of the proposed bridge as well as opportunities for utilities on the bridge itself. Alternatives to be considered on the bridge approaches will include the use of dedicated utility corridors.

The CONSULTANT will identify and catalogue utility requirements for the highway work and bridge(s) proposed for each of the 4 alternatives. Meetings will be held with appropriate utility owners to determine the best approach to providing such utilities.

Regulatory requirements for utilities, such as minimum separation, that could affect relocation decisions will be researched and documented by the CONSULTANT. Other constraints and special considerations will be documented including:

- The presence of critical utilities – for example, emergency phone lines and power supplies to vital infrastructure.
- Potential schedule and sequencing issues.
- Safety issues.
- Environmental concerns.
- Utilities that have long-lead items, long construction periods or high costs associated with relocation.

The CONSULTANT will take the primary role in coordinating with the STATE and utility companies to address potential issues of design impacts on utilities, and utility relocations and modifications. As the preliminary designs are advanced for each alternative, the

CONSULTANT will identify each specific area of concern and/or conflict for each utility. Conceptual relocation alternative(s) will be identified for each conflict through an iterative process involving the CONSULTANT, the STATE and utility owner(s), as appropriate. Based on the discussions, an acceptable preliminary solution will be identified and added to the drawings.

Assumptions:

- Up to 2 formal meetings each will be held with electrical and telephone utility owners to discuss providing necessary power and communications for the highway work and bridge(s). The meetings will be attended by up to 2 CONSULTANT staff.
- Up to 2 formal meetings will be held with each affected utility owners to review options for resolving conflicts. The meetings will be attended by up to 2 CONSULTANT staff.
- Up to 6 formal site visits to review alternatives in the field, each attended by up to 2 CONSULTANT staff.
- Placing overhead power lines underground is not anticipated; overhead power lines and all other utilities will be relocated in kind.

Deliverables:

- Draft and Final Utility Relocation Memorandum (15 copies each)

8.7 Right-of-Way

8.7.1 Existing ROW Plans

The CONSULTANT will prepare right of way plans as directed by the STATE of the existing right of way, at a currently undetermined scale based upon the guidelines set forth in the respective STATE's Right-of-Way Manuals (ODOT "Right of Way Engineering Manual" and WSDOT "Techniques of Right of Way Plans Preparation" and Division 1 of the "Plans Preparation Manual"). Right of Way may also be required at extensions of ramps and at intersections with streets outside the corridor area. Project limits for preparation of existing plans will include I-5 between Columbia Boulevard in Portland to the north ramp extensions from SR 500 in Vancouver. Equation stations will be established to correlate with stationing on the existing I-5 Right-of-Way plans. All stationing and plan preparation will be prepared in English units. State Plane Coordinates for two monuments tied to "L" or centerline will be shown on each sheet along with the combined scale factor used. Only the alignments used to define the right of way will be shown.

The CONSULTANT will submit three full size (22" by 34") sets of prints to WSDOT and three roll maps to ODOT for review and approval. Following review, the CONSULTANT will address and incorporate the comments and deliver one full size set of reproducible drawings, one half size set of reproducible drawings (11" by 17") for WSDOT and two sets of electronic files, one in State Plane Coordinates as a work sheet and one in English/Ground Units as the Right of Way Plans in a .dgn format (MicroStation).

The CONSULTANT will jointly assist the STATEs in the determination of the appropriate disposition of each comment. All conflicting comments will be resolved jointly by the STATEs and the CONSULTANT with the final disposition given by the STATEs.

Deliverables:

- Draft and Final Existing Right-of-Way Plans (copies as described above)

8.8 Traffic Management/Construction Staging

8.8.1 Traffic Management/Staging Evaluation

For each of the 4 build alternatives a description of feasible construction sequencing and staging plans will be developed by the CONSULTANT to a level of detail necessary to support the EIS in analyzing the environmental impacts due to construction. The description will include a discussion of the alternatives both qualitatively and quantitatively where possible in terms of the following criteria: construction sequencing, impacts on adjacent public facilities and businesses, storage of construction materials and equipment, site accessibility, working space, office space, utility relocations, temporary utilities, construction safety for the traveling public and construction workers, and mobility of freight and commuters. A feasible construction schedule and overall construction duration will also be estimated.

A Technical Memorandum with attached appendices will be prepared to document the conceptual traffic management/staging plan for each of the build-alternatives.

Deliverables:

- Draft and Final Traffic Management/Staging Memorandum (15 copies) each

8.9 Conceptual Geotechnical Design

Conceptual geotechnical engineering services are required to develop the Environmental Impact Statement (EIS) and conceptual design for 4 alternative replacement schemes for the CRC Project including any transit alternatives considered.

It is assumed that initial contact for obtaining Right of Entry for the purposes of performing field reconnaissance and explorations on private property will be performed by the STATE. This will include the preparation of any documentation required for signature by the property owner.

Upon securing the Right of Entry, the CONSULTANT will coordinate with the property owner and provide supporting documentation regarding the activities to be performed on the property, as required.

8.9.1 Data Collection, Compilation and Review

The CONSULTANT will collect and review readily available geotechnical and geologic data for the project including, but not limited to; Geologic maps from the U.S. Geologic Survey, WSDOT/ODOT construction records, soils and geotechnical reports from WSDOT/ODOT, Federal, Community, City or County officials, groups or individuals.

The results of this review will be summarized in a database. Copies of all available exploration logs will be copied and collated for use in evaluating the subsurface conditions along the project corridor.

The CONSULTANT will perform an on-site site review of the project corridor. The CONSULTANT will evaluate general site conditions, access for explorations, condition of

existing transportation features, soil exposures, groundwater seepage areas, signs of instability, and potential other geologic hazards associated with the project.

Deliverables:

- Draft and Final Existing Geotechnical Database (15 copies) each

8.9.2 Seismic Design Criteria

The CONSULTANT will review the site seismicity and provide input to assist in the development of the seismic design criteria for the project. In conjunction with the STATE and CITY, the CONSULTANT will establish single or multiple ground motion return periods and/or deterministic sources that will be used for seismic design. Using existing PSHA and/or ground motion attenuation relationships, we will develop peak ground accelerations corresponding to firm soil/rock conditions. We will also provide appropriate AASHTO site coefficients and empirical code based spectra.

Deliverables:

- Draft and Final Seismic Design Criteria (15 copies) each

8.9.3 Project Geology

The CONSULTANT will summarize the regional geology and geology of the project limits.

Geological hazards will be assessed and the potential impacts to the project will be discussed. Recommendations for mitigating the hazards will be provided. Liquefaction potential will be assessed based on the results of selected previous explorations along the alignment as well as any new explorations performed for the project.

Soil profiles will be developed and shown for all structures or significant embankments/ excavations. Plan views will be prepared that show the actual locations of the explorations in relation to project elements. The profiles will be based on both the available existing exploration logs as well as any new borings drilled for this project.

A Technical Memorandum with attached appendices will be prepared to document the project geologic conditions for each of the build-alternatives.

Deliverables:

- Draft and Final Project Geology Memorandum (15 copies) each

8.9.4 Field Explorations

The CONSULTANT, in consultation and coordination with the STATE, will plan and conduct a subsurface investigation program utilizing exploratory borings and insitu tests to provide information relative to soil, groundwater, and other geologic conditions along the project alignment.

The CONSULTANT will develop an Exploration Plan showing the locations of existing information, proposed locations for new explorations, the anticipated depths and sampling requirements for the borings, and field instrumentation requirements. Existing subsurface information will be utilized and considered when preparing the field exploration plan.

The CONSULTANT will submit the plan to the STATE for review and approval. Upon approval, the CONSULTANT will locate/stake all boring locations in the field.

The CONSULTANT will obtain the permits required to perform the explorations.

The CONSULTANT will obtain utility locates prior to field investigations requiring digging or boring and will field locate the borings or test pits relative to existing structures and facilities.

The CONSULTANT will coordinate with the STATE and the cities of Portland and Vancouver to develop the necessary traffic control plans, and provide all traffic control for the field explorations.

The CONSULTANT will subcontract with an experienced contractor to perform the explorations for the project. It is anticipated that this work will generally be accomplished in one phase, which will include performing explorations in areas where available information is lacking to provide adequate information for the EIS preparation. .

All the explorations will be monitored by an experienced representative of the CONSULTANT, who will log the explorations, classify the material encountered, and retrieve representative samples. The CONSULTANT will retain all soil samples for a period of 90 days after submittal of the final geotechnical report, at which time the samples may be disposed of unless the STATE requests that they be made available for pick-up at the CONSULTANT's office.

The CONSULTANT will prepare logs for all the explorations. The logs will be edited based on laboratory or field tests in accordance with the STATE Soil and Rock Classification Guidelines. Boring logs with station, offset, elevation, groundwater elevations, and uncorrected SPT test results with blows per 6 inches will be provided. Soil units encountered in the field exploration will be described and their extent and limits will be identified.

The results of the field exploration and all of the equipment used will be summarized. Down hole hammers or wire line operated hammers will not be used for Standard Penetration Tests (SPT). See Attachment A for boring specifics.

Deliverables:

- Draft and Final Project Geotechnical Report (15 copies) each

8.10 3-D Models, Renderings and Design Visualization

8.10.1 3-D Models, Renderings and Design Visualization

The CONSULTANT will provide a model through 3D renderings and animations that will allow for increased understanding about the proposed project from various locations and visual perspectives.

- Use 2 design visualization techniques for initial alternative identification. *Conceptual sketches* will be prepared for early alternative analysis to present information to the public. These sketches will be prepared as overlays to photography of the site or with renderings from the 3D model. *Photo-realistic simulations* for up to 4 build alternatives will be prepared. These highly realistic and accurate simulations are based on engineering data and give the public a powerful image of what is proposed.

- Develop an engineering accurate 3D computer model of the entire project site. The 3D model will be based on 2' contour data, as-built engineering drawings and photography. The model will be built in two phases. During phase I, construct the existing conditions including roads, structures, harbor, and surrounding buildings. The model will be technically accurate, but will not be photo-realistic in quality. Phase II, construct design alternatives and include realistic details for presentation to the public will be completed under a later Scope of Work.

Use 2 animation techniques to view proposed alternatives. *3D animation* allows sequences to be generated such as car, pedestrian, river traffic or truck movement once the model is complete. Construction sequencing and maintenance of traffic issues are effectively communicated to the news media and general public with this tool.

Deliverables:

- 15 total Conceptual sketches
- 12 total Photo-realistic simulations
- 3D Computer Model (Phase I only)
- 8 total 3D animations (30 seconds each)

8.11 Surveying/Base Mapping

8.11.1 Basemap Completion

The CONSULTANT will provide field survey to complete the Project aerial base mapping provided by the STATE. This work will include identification of objects that could not be identified from the photographs, and survey of obscured areas where mapping is needed. This work could also include survey work to confirm storm water system locations such as manholes or to spot check selected facilities to determine their accuracy.

8.11.2 Basemap Updates

The CONSULTANT will from time to time update the Project base mapping provided by the STATE. It is assumed that this update will only required on a periodic basis as major changes to the corridor are not expected. It is assumed that only 12 base map updates are required.

8.11.3 Additional Surveying Services

The CONSULTANT will respond with 24-hour notice to a survey request. Site specific data collection could include, but is not limited to, horizontal and vertical position of utilities (potholing and/or inverts), geotechnical bore hole locations, hazardous waste material sites, existing structure and bridge as-builts, railroad tracks, roadway centerline and crown, columns, rockeries, traffic barriers, top of curbs and flow lines, and adjoining buildings.

Additional Survey services may include work to define "One Call" alignments and pothole locations

Production allocation is based upon 1 crew of 3 persons each at 8 hour days per person. For each crew hour 1 hour for a survey technician for data reduction and processing, and mapping and

one-half (0.5) hour for a professional surveyor for checking and coordination.), assuming 1 three- person crew at 3 workdays a month for 15 months. The CONSULTANT will supply all traffic control for this field work as necessary with prior approval by the STATE of any traffic control plan needed to perform the work.

8.11.4 Underwater Survey

8.11.4.1 High-Resolution Bathymetric Mapping

The CONSULTANT will conduct a detailed multibeam bathymetric survey of a 3,000-foot wide corridor (1,500 feet upstream and 1,000 feet downstream of the existing I-5 bridge over the Columbia River and over the Oregon Slough on the south side of Hayden Island. The CONSULTANT's vessel will use a state-of-the-art survey suite based around a Reson 8101 multibeam system, or equivalent. Vessel positioning and dynamics will be obtained from an Applanix POS/MV, inertial and real-time kinematic (RTK) global positioning system (GPS) motion reference system, or equivalent, that will allow for positioning under the existing bridge. An RTK GPS base station will be established on-shore on a control monument, provided by CRC, with known coordinates and elevation based on the upland mapping for the project. This method will accurately tie the offshore marine survey to upland mapping efforts by others. We have also included one day of single beam bathymetric data collection with a small vessel to obtain data in and around the floating structures in Oregon Slough. The multibeam survey will provide detailed mapping of river-floor features in the survey area, including any bed forms (sand waves), exposed bedrock, existing bridge piers, shoreline armoring and obstructions above the river bed that could impact construction operations. The detailed bathymetric model will be presented on a 1-meter grid and will be useful for development of follow-on studies such as sediment sampling or hydrodynamic modeling efforts in support of the design effort.

Deliverables:

The bathymetric data will be presented as a plan set of detailed one-foot contours and depth colored hill shade images of the final one-meter grid of bathymetric data. Basemap information will be provided by Columbia River Crossing.

- Detailed river bed contour map
- River bed profile drawing
- Hill shade images of final bathymetric model colored by depth
- Descriptive report of the survey describing survey methodology, documentation of the equipment and selected images of profiles
- AutoCAD, MicroStation, or ESRI ArcGIS digital database

8.11.4.2 Geophysical Investigation

The CONSULTANT will provide a marine geophysical investigation to provide design engineers with a better understanding of the distribution and thickness of subsurface units and general geologic setting. The investigation will be conducted from a survey vessel which transects along which continuous "cross-sectional" views of the stratigraphic layers are obtained.

The CONSULTANT proposes to use a relatively low frequency single channel reflection system: either an Applied Acoustics "Boomer" (700 Hz) system or a Datasonics "Bubblepulser" system

(400 Hz). Both systems will be mobilized and after running test lines the best system for the local conditions and for attaining the engineering objectives will be utilized. Data from the seismic system will be recorded digitally in the CONSULTANT's ISIS image processing system. Analog records on thermal film will also be produced in real-time. Transects will be run on a 100-foot line spacing over a 1500 foot wide corridor centered on the proposed alignment.

Deliverables:

The seismic data will be reviewed and elevation maps of the tops of significant horizons will be produced based on the interpretation of the seismic records. Cross-sections along the proposed alignment showing the seismic horizons below the current bathymetric profile will also be produced.

- Interpreted horizon contour map
- Interpreted geologic profiles
- Descriptive report of the survey describing survey methodology, documentation of the equipment and selected images of profiles
- AutoCAD, MicroStation, or ESRI ArcGIS digital database

8.11.4.3 River Bed Imaging

River bed imaging will be provided to detail changes in bed substrate materials and map river bed features. The imagery will identify piles, bedforms, changes in substrate and other features lying on the river bed.

The CONSULTANT will use Edgetech 4200 FS sidescan sonar to collect sonograms of the riverbed along the proposed alignment. Post processing will include producing a geocorrected sonar mosaic image in TIFF format and a sidescan interpretation.

Deliverables:

- Interpreted substrate and surficial features map
- Mosaic of river bed imagery
- AutoCAD, MicroStation, or ESRI ArcGIS digital database

8.11.4.4 Acoustic Doppler Current Profiling

The CONSULTANT will provide a vessel, crew and equipment for river current velocity profiling with an Acoustic Doppler Current Profiler (ADCP) during high river flows in the winter/early spring of 2006. Several transects will be run across the Columbia River and Oregon Slough in the vicinity of the existing I-5 bridge. The objective is to obtain current velocity profiles and total flow (Q) in cubic feet per second along predetermined transects during a high flow event in the winter/spring of 2006. This data will be useful for calibration and verification of follow-on hydrodynamic modeling efforts in support of the design effort.

For this project the CONSULTANT will provide a vessel equipped with navigation software and electronic chart radar. Crew will consist of a vessel pilot and a hydrographer for instrument operation and data logging.

Instrumentation will consist of an RDI 1200 kHz Acoustic Doppler Current Profiler (ADCP), a Trimble POS/MV combined inertial and RTK GPS for positioning and heading data, and data acquisition and navigation computers.

Water level observations will be obtained from the NOAA National Water Level Observation Network (NWLON) station located in Vancouver, Washington.

Deliverables:

- ADCP data in an RDI format which can be accessed, analyzed and ASCII files exported with WinRiver software
- RDI WinRiver software
- Descriptive report of the survey describing survey methodology, documentation of the equipment and selected images of profiles
- ASCII files of processed ADCP data

8.11.4.5 Bottom Sediment Characterization

The CONSULTANT will characterize the sediments within the design corridor. Bottom surface sediments will be collected and analyzed for contaminates. This task will include development of a sampling analysis plan (SAP), collection of samples, laboratory analysis and production of a sediment characterization report.

Sediment sampling for this project will be conducted aboard the CONSULTANT's survey vessel. The vessel is equipped with a hydraulic A-frame, winches, and raw water wash down system for support of sediment sampling operations. The positioning and navigation system, aboard the Vessel will provide navigation to predetermined sampling sites and precise positioning of actual sample locations.

Prior to sampling, the CONSULTANT will prepare a Sampling and Analysis Plan (SAP) and a Quality Assurance Project Plan (QAPP) for sampling operations. The CONSULTANT will provide one staff person to assist the CONSULTANT's vessel crew for 1-day of on-water sample collection for laboratory analysis. All samples will be analyzed for the full DMMP chemical suite (conventional, metals, SVOC, VOC, etc.). The CONSULTANT anticipates 6 samples to provide enough coverage to make statements about the overall sediment quality at the site. Sample sites will be determined from evaluation of the hydrographic and geophysical survey.

Deliverables:

- Sample and Analysis/Quality Assurance Plan
- Laboratory Data Package
- Letter Report presenting the sediment characterization
- Map of Sample Locations

8.12 Miscellaneous Team Support

8.12.1 Environmental Team Support

The CONSULTANT will provide ongoing technical and engineering support to the Environmental Team. This includes, but is not limited to Environmental Team Meeting and Working Group attendance and preparation/review time for exhibits, written and graphical materials etc. to support those meetings. It is assumed that this effort will require three-quarter (0.75) FTE for 15 months.

8.12.2 Communications Team Support

The CONSULTANT will provide ongoing technical and engineering support to the Communications Team. This includes, but is not limited to Communications Team Meeting and Working group attendance, Public Outreach event attendance in addition to preparation/review time for exhibits, written and graphical materials etc. It is assumed that this effort will require three-quarter (0.75) FTE for 15 months.

8.12.3 Transportation Planning Team Support

The CONSULTANT will provide ongoing technical and engineering support to the Transportation Planning Team. This includes, but is not limited to Transportation Planning Working Group Meetings, in addition to preparation/review time for exhibits, written and graphical materials etc. to support those meetings. It is assumed that this effort will require one-quarter (0.25) FTE for 15 months.

8.12.4 Transit Planning Team Support

The CONSULTANT will provide ongoing technical and engineering support to the Transit Planning Team. This includes, but not limited to Transit Planning Working Group Meetings, in addition to preparation/review time for exhibits, written and graphical materials etc. to support those meetings. It is assumed that this effort will require three-quarter (0.75) FTE for 15 months.

8.12.5 Implementation Team Support

The CONSULTANT will provide ongoing technical and engineering support to the Implementation Team. This includes, but not limited to Implementation Team Meetings, in addition to preparation/review time for exhibits, written and graphical materials etc. to support those meetings. It is assumed that this effort will require one-quarter (0.25) FTE for 15 months.

8.13 Quality Assurance/Quality Control

8.13.1 Ongoing QA/QC

The CONSULTANT will implement the project's Quality Control Plan as developed and approved in Work Element 2.0. In the event that the STATE determines that it has received products which have not been properly quality-controlled, the STATE will return the products to the CONSULTANT for review and correction, at no additional cost to the STATE. The products will then be re-submitted to the STATE for the standard review and comment period.

9.0 INTEDISCIPLINARY COORDINATION, DOCUMENTATION, AND STRATEGIES

Work under this task includes coordinating component and alternatives analysis among the disciplines and developing strategies to achieve selection of the preferred alternatives that will be carried forward into the DEIS. Work includes documenting outcomes in working papers or technical memorandums. Key work elements include:

- Refinement of evaluation criteria, performance measures, coordination of the evaluation process, and documentation of component screening
- Refinement of performance measures, packaging components into alternatives, coordination of the evaluation process, and documenting alternative screening
- Development of strategies and process for gaining consensus among stakeholders in Washington and Oregon that will lead to narrowing of alternatives to those carried forward in the DEIS

9.1 Component Screening

The CONSULTANT will coordinate packaging of components, refining performance measures, and documenting the process for review and evaluation through the CRC decision process. Work includes assuring relevant components are tracked and processed through coordination with Communications, Transportation Planning, Environmental, Transit, and Design disciplines.

The CONSULTANT will prepare a technical memorandum documenting the generation through evaluation and narrowing of components to those that will be packaged for alternative screening.

Assumptions:

- This task is a supportive coordination and documentation effort to specific component generation, evaluation, and screening described elsewhere in this scope of work.

Deliverables:

- Draft and final technical memorandum documenting the component screening process

9.2 Alternative Screening

The CONSULTANT will coordinate development of alternative packages that will be further evaluated in the alternative screening process. Work will include assembling alternative packages, coordinating development of performance measures for alternative screening, coordinating measurements with other disciplines, and documenting the process for review and evaluation through the CRC decision process.

The CONSULTANT will prepare a technical memorandum documenting the generation through evaluation and narrowing of alternatives to those that will be evaluated in the DEIS process.

Assumptions:

- This task is a supportive coordination and documentation effort to specific alternative generation, evaluation, and screening described elsewhere in this scope of work.

Deliverables:

- Draft and final technical memorandum documenting the component screening process

9.3 Interagency Coordination

The CONSULTANT will coordinate with stakeholder agencies and groups to assist in achieving agreement on activities that will lead to selection and narrowing of alternatives and aid in implementing the project Purpose and Need.

9.3.1 Key Stakeholder Support

The CONSULTANT will provide one-on-one communication with key stakeholders to facilitate their understanding of project issues, solicit their input on project direction, obtain their evaluation of project progress, and identify opportunities for their effective participation in the project.

The CONSULTANT will attend transportation meetings as directed by CRC including CRC Regional Sponsors Council, CRC Task Force, CRC Regional Partners Group, CRC PDT, JPACT, TMAC, Vancouver Chamber, Portland Business Alliance, Oregon Business Association, Oregon Business Council, Identity Clark County, Oregon Freight Advisory Committee, Portland Freight Advisory Committee, WSDOT Commission meetings and OTC meetings.

CRC and Regional Partners will provide direction for these activities and be provided with bi-weekly reports of activities.

Assumptions:

- A maximum of 15 hours of activity per week by Tom Markgraf
- Bi-weekly briefings by Tom Markgraf of Project Directors and Communication Team Leaders

Deliverables:

- Bi-weekly memorandum listing persons contacted, meetings attended, and items discussed

9.3.2 Strategic Communications Research

The CONSULTANT will implement a research plan to gather information for use by the CRC, PDT, ODOT and WSDOT decision makers. The research incorporates surveys to provide statistically valid data and focus groups and electronic discussion groups to provide insightful qualitative information.

Assumptions:

- Two focus groups, one comprised of Oregon residents and one composed of Washington residents, will be conducted at a time approved by CRC to gather information on various elements of the project. Each group will be a broad cross section of the population including some commuters who use the I-5 Interstate Bridge.
- A telephone survey of 800 Oregon and Washington residents will be conducted at a time approved by CRC to benchmark opinions about the project.
- Three on-line discussion panels of about 30 participants, or an equivalent effort will be initiated at a time approved by the CRC to provide ongoing commentary and insights on project issues.

- A telephone survey of 400 Oregon and Washington residents will be conducted in late 2006 to track public opinion.
- Five communication strategy meetings with Tom Eiland and Gary Conkling will be held throughout the contract period to discuss information provided by the research and develop communication strategies. Notes from the meetings will provide a basis for media relations and strategic communication strategies.
- Substantial participation by Tom Eiland and Gary Conkling is assumed for all elements of this subtask.
- Develop three web-based, on-line surveys for posting during scope period.

Deliverables:

- 2 focus group results
- Benchmark telephone survey results
- 9 internet discussion group summaries, three for each group
- Opinion tracking telephone survey results
- 5 communication strategy meeting notes
- 3 on-line survey questionnaires and three summaries of results